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The
FRUIT WORLD
ANNUAL

A PRACTICAL GUIDE
to the
GROWING OF FRUIT
and
VEGETABLES

A BOOK OF DAILY REFERENCE
For Growers of Apples, Pears, Vine, Citrus and Stone Fruits — Exporters, Marketgrowers, etc.

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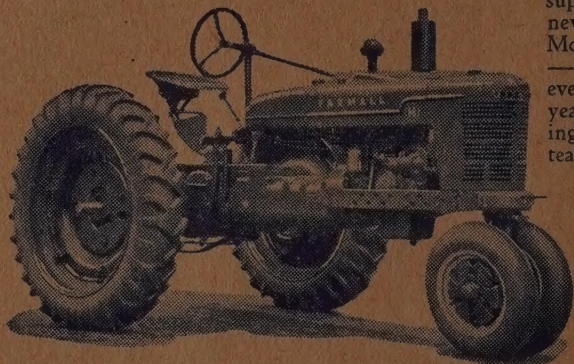
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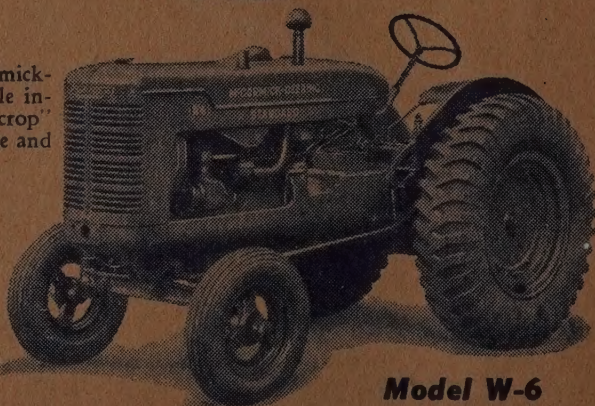


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Insect Pests and Fungous Diseases Control .. Methods Described and Illustrated ..

Spraying and Dusting in Orchards, Vineyards and Vegetable Gardens. Spraying and Fumigation in Citrus Groves.

SUCCESS IN FRUIT GROWING depends on many factors—soil, aspect, correct varieties, interpollination, drainage, manuring, cultivation pest control etc.

Other aspects also come under consideration, such as correct stage of picking, cool storage, as well as the all important subject of marketing.

Various phases of the Australian fruit industry are dealt with in this Annual.

However, in this section, the very important matter of pest and disease control is set forth. The major pests of fruit trees, vines, and vegetable gardens are described and illustrated, together with the latest known methods of control.

For leaf and fruit eating pests, arsenate of lead is the standard remedy. In orchards and vineyards, spraying is the chief method of application. At certain stages oil sprays are given for codling moth control. The oil acts as an ovicide for the eggs. In vegetable gardens, arsenate of lead is frequently used in dust form, and is applied by means of blowers.

With regard to the method of application, thoroughness is essential. For codling moth control, in order to have spray applications properly timed, lure pots should be placed in trees in order to ascertain the peak flight of moths. Lures consist of wine, Apple juice or cider; golden syrup and molasses are useful but less reliable than wine and more prone to trap extraneous insects.

For aphids and sucking insects, nicotine extract is used, also oils and standard proprietary sprays.

Scale insects are controlled by fumigation and spraying.

For fungus diseases the standard remedies are Bordeaux and Burgundy mixture, and lime sulphur. The time of application is most important.

The following are the broad lines of control.

Hints are now given regarding the various seasonal operations, as follow:—

In Summer: Spray citrus trees with white oils or fumigate with hydrocyanic acid gas to kill scales. Continue with arsenate of lead on deciduous trees; white Summer spraying oils will kill the codling moth eggs, and generally control aphids, red spider and other orchard pests. Continue with nicotine for aphides and scales. Dust with nicotine or pyrethrum insecticides.

In Autumn: Spray deciduous trees with arsenate of lead for leaf and fruit-eating pests. Spray Apricot trees in May with Bordeaux 6-4-40 plus 1 lb. lime casein spreader to 100 gallons of spray, this being one of the necessary sprays to control scab or shot hole.

In Winter: Spray deciduous trees with red oil, or lime-sulphur, to check San Jose, mussel and olive scale, red spider, bryobia mite, Pear phytoptus.

For several fruit rots, spray in mid-Winter, after pruning, with Bordeaux, 6-3-40. Spray vines with red oil, 1-20, to kill vine scale.

Late Winter (and before buds open in the Spring). — Spray with red oil for scales and mites, and with Bordeaux or lime-sulphur for fungous diseases. Lime-sulphur also destroys red spider and woolly aphids. Apply tar distillate, 1 in 35 as an ovicide to Peach and Cherry trees, before bud movement, to control aphids.

In Spring: Spray deciduous trees and vines with Bordeaux or Burgundy mixture against black spot, leaf curl and other fungous diseases.

Spray with arsenate of lead for codling moth and leaf-eating insects. Many growers use for the "calyx" spray on Apples and Pears, a combination of arsenate of lead with a fungicide. As a fungicide some growers use lime-sulphur, others Bordeaux or Burgundy.

In Spring, spray Peach, Nectarine, Plum trees, Roses, shrubs and garden plants with nicotine preparations to kill aphides scales and plant bugs.

Spray Apricot trees with Bordeaux 6-4-40 plus 1 lb. lime casein spreader during pink bud stage.

For vegetable culture the foregoing hints are generally applicable. However, the practice of dusting with insecticides and fungicides is approved practice.

SOME REASONS FOR SPRAYING FAILURES.

1. Failure to spray at the correct time. Fungicides are preventives and should be applied as such. After the disease has developed it may be too late to save the crop.
2. Spraying when the sun is very hot may cause scald to fruit and foliage.
3. Spraying during or just after a shower or heavy dew results in much of the value of the spray being lost. When the leaves are dry, the spray is more effective.
4. The applying of Winter strength spray in Summer may cause severe burning, or the application of Summer strength spray in Winter may be too weak to be effective.
5. Failure to spray every tree.
6. Spraying while trees are in full bloom may injure the blossoms and may also poison bees, which assist in the pollination.
7. Faulty application. If the spray is applied hurriedly, the fruit and foliage may in consequence be not properly protected.

The foregoing information sets out the general outline for the control of insect pests and fungous diseases.

Detailed information and illustrations of the major pests and diseases are given on the following pages.

Effective Pest Control

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COOPER SPRAYS

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ARSINETTE Specially prepared Arsenate of Lead Powder, unsurpassed for fineness of particles. Used for the control of all chewing grubs and insects. Packed in 1½ cwt., 1 cwt., 28 lb. and 4 lb. and 1 lb. units.

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COOPER'S

BORDINETTE Ready prepared Copper Fungicide. Mixes immediately with cold water and is then ready for use. For the control of all Fungous Diseases of plants for which a Copper spray is advocated. Dilution 1 lb. to 10 galls. Packed in 56 lb., 28 lb., 4 lb., and 8 oz. containers.

COOPER'S

OVICIDE The original Tar Distillate Wash. Used all over Australia for the control of aphis and other overwintering pests. For dormant spraying only. Packed in 45 gall., 5 gall., 2 gall., and 1 gall. containers. Dilution 1 gall. to 40 gall. water.

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WETSUL a non-poisonous and odourless type of sulphur spray in powder form for the control of those Fungous Diseases for which sulphur is the recognised remedy. Packed in 56 lb. cartons (2 x 28 lb. bags). Dilution: From 2 to 5 lb. per 50 galls. water.

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CLASSIFIED INDEX OF ORCHARD PESTS AND DISEASES (Continued).

Description of Pests as Illustrated.

Woolly Aphis.—This aphid lives in hollows and crevices, on the roots, trunks, and limbs of the Apple tree, causing very unsightly swellings, made by the pricking of their beak-like rostrums (or sucking tubes), thus absorbing the juices of the tree. They are manifested mainly by a white, downy appearance on the twigs, limbs and branches.

Aphis of Peach (Black and Green).—Black and Green Aphis infest branches and leaves, causing the latter to curl and dry up. They are very troublesome when the young shoots are beginning to grow in spring.

Black aphid infest roots.

Various Aphis also attack Roses, Carnations, Pansies, and garden plants.

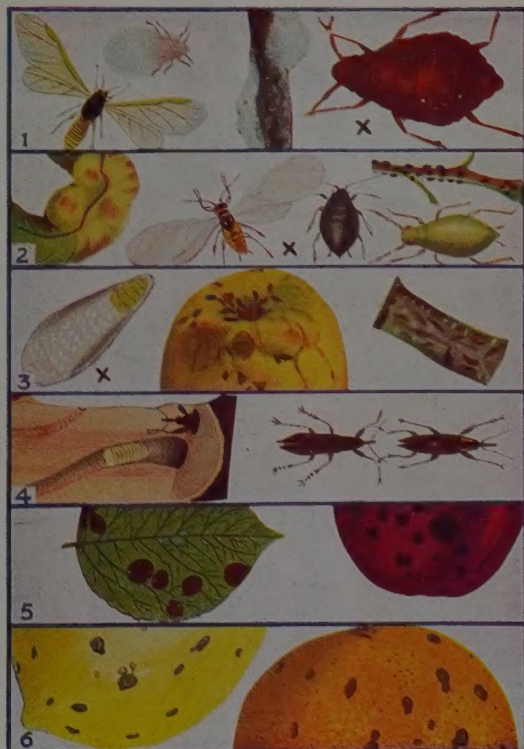
Apple Mussel Scale.—Attacks the fruit and branches of Apples, Pears, Plums, etc., disfigures the fruit; absorbs sap. If unchecked, will encrust the trunk and main arms.

Apricot Beetles.—Small Weevils with a tapering body, most destructive; they do great damage by boring and tunnelling into Apricot trees.

Black Spot of Apple and Pears.—These fungi attack both fruit and leaves. On the fruit they form dark green, often circular, velvety patches, and generally cause the fruit to crack. On the leaves they appear as round or oval spots.

Black Spot of Orange and Lemon.—The round sunken spots are of a dark brown color, and nestling in the centre are the minute, black, punctiform pustules, visible to the naked eye.

Pest or Disease. (X magnified.)



Methods of Control of Insect Pests and Plant Diseases (illustrated above).

(1) **APHIS, WOOLLY (*Eriosoma lanigera*).**—Attacks Apple and Pear trees. Introduce *Aphelinus* parasite into orchards. Spray forcibly with nicotine solutions, white oils in summer, and Red Oil in winter. A combination winter spray, Nicotine Sulphate, Red Oil and soap has been found effective. Use pyrethrum dusts. Grow trees having blight-proof stocks.

(2) **APHIS OF PEACH.**—There are two aphids commonly attacking the Peach:—

Green Peach Aphis—*Myzus persicae*.

Black Peach Aphis—*Anuraphis persicae-niger*.

For Green Peach Aphis, use tar distillate 1 in 35 before mid-July; lime sulphur during winter; and white oil and nicotine sprays in the summer. It may be necessary to spray the trees several times in the summer. Keep ground near trees free from weeds.

For Black Peach Aphis, use nicotine sulphate or tobacco sprays in the summer. It may be necessary to spray the trees several times in the summer. Keep ground near trees free from weeds.

For the various aphids attacking Roses, Carnations, garden plants and vegetables, use tobacco sprays or dusts.

(3) **APPLE MUSSEL SCALE (*Lepidosaphes ulmi*).**—Spray in winter with Miscible Red Oils, 1

in 25, or Lime Sulphur, 1 in 15. Spray in summer with White Oils or nicotine solutions.

(4) **APRICOT BEETLES (*Belus* sp.).**—Spray with Arsenate of Lead. Inject Bisulphide of Carbon into tunnels made by beetles.

(5) **BLACK SPOT OF APPLE (*Venturia inaequalis*).**—Spray with Bordeaux Mixture 6-4-40 at the green tip stage, followed by Lime Sulphur 2-80 at petal fall stage, followed by Lime Sulphur 1 in 80 two weeks later.

For Pear Spot (*Venturia pirina*), spray with Bordeaux Mixture, 6-4-40, when the young folded leaves are just protruding from the bud, and again at a slightly later stage, when the young folded leaves and the blossom bud have separated. The blossom buds would still be green.

Some growers follow up with 4-5 ozs. of blue-stone with every 80 gallon vat of lead spray, using also 1 lb. lime casein spreader, or Bordeaux mixture 3-3-50 three weeks after the fruit has formed. The above schedule should not be used for Josephine Pears.

(6) **BLACK SPOT OF ORANGE and LEMON (*Phoma citricarpa*).**—Spray with neutral Bordeaux, 3-3-50, at the first appearance of blossom. If this stage is missed, spray 6-4-100 when fruit is well set. Citrus trees, where the drainage is not efficient, are more prone to this disease than trees on well-drained plantations. Use Sulphate of Iron, $\frac{1}{4}$ lb. to each tree.

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CLASSIFIED INDEX OF ORCHARD PESTS AND DISEASES (Continued).

Description of Pests as Illustrated.

Black Spot of Vine.—The spores are ever-present. Under genial conditions for incubation and growth, the disease spreads rapidly, causing much loss. The disease seldom appears in dry seasons.

Brown Rot.—One of the most serious fungus diseases, the twigs, blossoms and fruit are attacked. (1) Blossom attack looks like frost injury. (2) The infected area on fruit spreads in concentric rings, which consist of millions of summer spores.

Cherry Borer.—The grub of the moth destroys Cherry, Apricot, Peach, Pear and Plum trees by boring into the branches, leaving a sawdust-like appearance on the outside of the hole.

Cherry Green Beetle.—Attacks the leaves of Cherry, Peach, Plum and Apple trees, Roses, and garden plants, etc., and, being in large swarms, will strip a tree in a very short time.

Codling Moth.—The grubs, which hatch in eight or nine days from eggs laid at calyx of young fruit and on leaves, eat into the core; then they eat a tunnel to the outside of the fruit and lower themselves to the ground, and recommence the life-cycle. Several broods appear each season.

Cottony Cushion Scale.—A cushion-shaped scale insect, with a whitish-yellow, cottony down; attacks the leaves and stems.

Curculio of Vine.—A small boring weevil, reddish-brown, with light markings; very destructive. Will remain for twelve months or more in the wood.

Pest or Disease. (X magnified.)



Methods of Control of Insect Pests and Plant Diseases (illustrated above).

(7) **BLACK SPOT OF THE VINE** [*Anthraco-nose*] (*Manginia ampelina*).—Swab with Acid Iron Solution in early spring before vines show movement. Spray with Bordeaux or Burgundy Mixture (alkaline) when buds are bursting. Follow with Bordeaux or Burgundy neutral, giving applications according to weather conditions.

(8) **BROWN ROT** (*Sclerotinia fructicola*).—Attacks Peach, Plum, and other stone fruit. Destroy mummified fruit. Spray Peaches, Plums, with Bordeaux 6-4-40 at bud movement; follow with Dry Mix Lime Sulphur, 25 lbs. to 100 gallons, at petal fall, when the fruit is half grown and five weeks before picking; Apricots, Bordeaux, 6-4-40 early pink bud and late pink bud.

(9) **CHERRY BORER** (*Maroga unipunctata*).—Clear away the sawdust-like matter, inject Bisulphide of Carbon into tunnel; when using carbon, close mouth of tunnel immediately to keep fumes from escaping. Caterpillars can be destroyed by probing the tunnel.

(10) **CHERRY GREEN BEETLE** (*Diphucephala colapsoides*).—If no fruit on the tree, spray well with Arsenate of Lead when beetle appears. When fruit is ripening, spray with Hellebore powder, 1 oz. in 2 gallons of warm

water. This should be used perfectly fresh, as it is liable to deteriorate with age or exposure.

(11) **CODLING MOTH** (*Cydia pomonella*).—Attacks Apple, Pear, Apricot, Quince, Loquat, Walnut, etc. Spray with Arsenate of Lead, first after petals fall and before calyx cup closes, and at intervals of 21-30 days until within three weeks of gathering fruit. Fungicides may be used with calyx spray. Excellent results have been secured by spraying with White Oils after first Arsenate of Lead spray. Destroy fallen infected fruit. If bandaging trees, examine and destroy larvae, at least every 10 days. Use chemical bandages.

(12) **COTTONY-CUSHION SCALE** (*Icerya purchasi*).—Attacks Orange, Lemon and other citrus trees, shrubs, hedge plants, etc., very severe on Pittosporum hedges. Spray with White Oil when the trees are making a decided growth about November. This is the time of the release of the young scale in most districts.

(13) **CURCULIO OF VINE** (*Orthorrhinus Kluggii*).—Inject Bisulphide of Carbon into tunnel and close mouth. Probe with wire. Deterrent.—Spray with Lime-Sulphur in winter.



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CLASSIFIED INDEX OF ORCHARD PESTS AND DISEASES (Continued).

Description of Pests as Illustrated.

Downy Mildew of Vine.—This serious disease over-winters in the dead leaves infected during the preceding summer. Infection in the spring takes place through spores being splashed up by falling rain. These over-wintering spores (or oospores) retain vitality for over 12 months.

Elephant Beetle of Orange and Lemon.—A large brownish weevil with a long snout. This has become a serious pest to citrus trees. It bores into the trunks of the trees, causing them to die. It is also a pest of Elm and other street trees.

Emperor Gum Moth.—One of the largest Victorian moths. Grey in color with an eye-like spot on each wing, the larvae feed on Apple and Pear trees, also Eucalyptus and Pepper trees. Very destructive to Roses.

Fruit Fly.—The female punctures the fruit with its ovipositor, and deposits the eggs. Fruit is punctured in all stages, from green to ripe. The eggs hatch in two to five days in summer, and 10 to 15 in winter. In walking the wings are drooped. In summer the fly may complete its cycle from eggs to fly in 20 days.

Harlequin Fruit Bug.—These bugs, by making holes in the rind of the Apple with their rostrums (or sucking tubes), draw out the juice, causing the fruit to spot. They are also very destructive to garden plants, especially Dahlias, Tomatoes, etc.

Holy or Cross Bug.—This plant bug is a native insect and is very destructive to all kinds of Wattles (Acacias) and citrus trees. Like all plant bugs, this species sucks the sap with its rostrum or beak, causing the trees (twigs) to turn black and die down.

Pest or Disease. (X magnified.)



Methods of Control of Insect Pests and Plant Diseases (illustrated above).

(14) **DOWNY MILDEW OF THE VINE** (*Plasmopara viticola*).—Spray with alkaline Copper Soda when vine shoots have grown 8 to 10 leaves. Subsequent sprayings about every seven days if weather conducive to fungus development. The summer treatment for Black Spot and Downy Mildew is identical.

(15) **ELEPHANT BEETLE OF THE ORANGE AND LEMON** (*Orthorrhinus cylindrostris*).—No satisfactory method is known for the control of this pest.

(16) **EMPEROR GUM MOTH** (*Antheraea eucalypti*).—Spray when observed with Arsenate of Lead.

(17) **FRUIT FLY** [Mediterranean] (*Ceratitis capitata*). — Attacks Peach, Orange, Banana, Quince, Apple, Tomato, Grape, etc. Kerosene in shallow vessels attracts the fly.

Destroy all infected fruit. Destroy weeds, work ground well under trees; poultry and insectivorous birds destroy chrysalids. Use a spraying solution—1 gallon of fruit juice (boil refuse fruit for about one hour), 1 lb. Arsenate of Lead, 25 gallons of water. Spray on windward side of tree.

A Good Lure.—One tablespoonful Scrubbs' ammonia, one teaspoonful essence of vanilla, 1½ pints water. A dessertspoonful of black treacle may be added, but is not essential. "Clensel" and other lures have been used with good results.

(18) **HARLEQUIN FRUIT BUG** (*Dindymus versicolor*).—Spray with Nicotine Solutions, Benzole Emulsion, White Oil or Clensel (1 in 25), whenever observed. Keep orchards free of marsh mallows.

(19) **HOLY OR CROSS BUG** (*Mictis profana*).—When observed, spray with Benzole Emulsion, Nicotine Extracts, or Pine Spray. Shake trees over piece of blanket, and destroy all bugs that fall. Spray with Benzol Emulsion.



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Methods of Control of Insect Pests, as illustrated
on opposite page.

(20) **LEAF CURL OF PEACH.**—By spraying in the late dormant period, or when the earliest buds are showing the slightest trace of pink, Leaf Curl can be prevented. Use Bordeaux Mixture (6-4-40). Finish spraying by the "early pink" stage.

(21) **LEMON LEAF AND PEEL SCALE** (*Mytilapsis citricola*).—Thin out all dead or diseased wood. Spray with White Oil, 1-40, when trees are making decided growth. Make solution soapy by adding 4 ozs. of a good hard soap to each 40 gallons. Fumigate with Hydrocyanic Acid Gas.

(22) **LIGHT BROWN APPLE MOTH** (*Tortrix postvittana*).—This pest is very common in home gardens, attacking Roses, Dahlias, Tomatoes, etc. The caterpillar is very lively, and quickly escapes if disturbed. Spray with Arsenate of Lead, same as for Codling Moth, No. 11.

(23) **"LOOPERS" OR LOOPER CATERPILARS** (*Phrissogonus* sp.).—These attack fruit trees, particularly Apples, Pears and Cherries; and garden plants in the spring. Spray with Arsenate of Lead.

(24) **OIDIUM [Powdery Mildew of the Vine]** (*Oidium Tuckerii*).—Dust the vines with Flowers of Sulphur; first application when new shoots are six inches long; also dust with Sulphur just before blooming and after the fruit has formed. Keep vineyard clear of weeds.

(25) **OLEANDER OR ROUND WHITE SCALE** (*Aspidiotus hederæ*).—Attack Orange and Lemon trees, also Oleanders and garden shrubs, palms, ferns, etc. Spray well with White Oil or Nicotine solution when young are hatching (in summer). Starch spray is also recommended. On Palms, Dracaenas, Ferns, etc., use the Starch spray.

(26) **OLIVE OR BLACK SCALE** (*Saissetia oleæ*).—Attacks citrus, Apple, Apricot, vine, Olive, Pear, and Plum trees, also garden shrubs. Spray between November and March with White Oils. When young scale are moving is the favored time for their destruction.

(27) **ORANGE BUTTERFLY** (*Papilio anactus*).—Spray with Arsenate of Lead.

CLASSIFIED INDEX OF ORCHARD PESTS AND DISEASES (Continued).

Description of Pests as Illustrated.

Leaf Curl of Peach.—When affected with Leaf Curl (Exoascus deformans), the first-formed leaves become thickened, puckered and discoloured, and soon fall away. The fungus seems to winter in the buds.

Lemon Leaf and Peel Scale.—A small, dark-colored, mussel-shaped scale; the insect attacks leaves, bark and fruit of Lemon, Orange, Citron, Grapefruit, etc.

Light Brown Apple Moth.—These insects often attack late Apples, such as Yates, as late as March. Very destructive to Roses and garden plants.

Looper Caterpillar.—The caterpillar loops its body up when walking. Some caterpillars resemble dead twigs. They are native insects and are becoming a serious pest in many parts of Victoria.

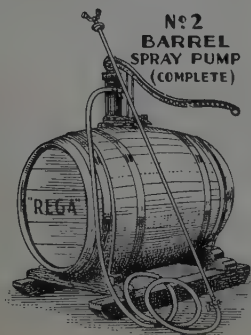
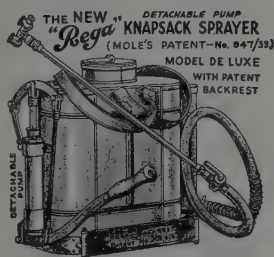
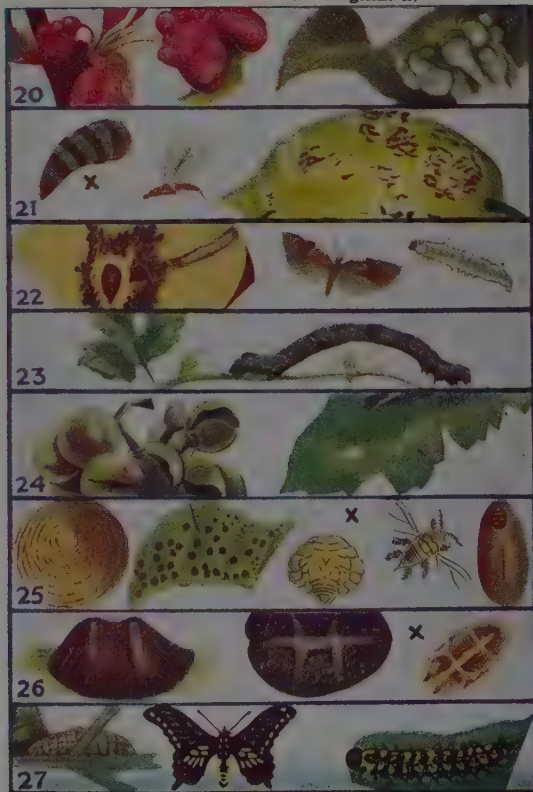
Oidium (Powdery Mildew of Vine).—This fungus appears during the growing season under sultry conditions, such as during a damp spring or after thunderstorms in summer. Dense undergrowth of weeds also tends to create conditions favorable for Oidium development.

Oleander or Round White Scale.—A small, light, greyish-brown, sometimes whitish scale, which attacks the leaves and stem, and is a most difficult insect to destroy when trees are badly infested with it.

Olive or Black Scale.—These destructive scales cause sooty fungus to develop on the leaves, making trees sickly. The scales are light brown when young with an H-like marking on back of scale.

Orange Butterfly.—In the warmer parts of Victoria these insects usually appear early in November. The yellow and black spiny caterpillars will attack Grapefruit if Orange or Lemon trees are not available; they attack the leaves, flowers and fruits of citrus.

Pest or Disease. (X magnified.)



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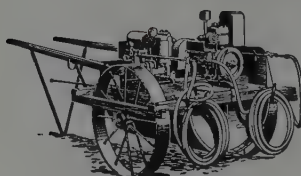
LIMITED QUANTITIES OBTAINABLE
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Largest Manufacturers of Power Sprayers in Australia

14 Models to Suit Every Possible Requirement



To-day after many years of progressive development in design and quality, Ronaldson-Tippett Spray Plant equipment sales overshadow all others.

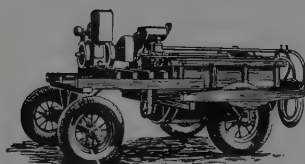
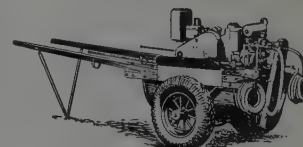
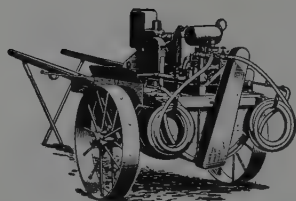
Ronaldson-Tippett build into every machine features ensuring faithful, efficient, and reliable service, year in and year out, with an absolute minimum of attention and duplicates.

In the Harcourt district alone approximately 100 plants up to 14 years old were serviced last season at only a few pence per plant.

The largest and oldest growers in the Commonwealth have set the seal of approval on Ronaldson-Tippett plants—a few purchasers being:—

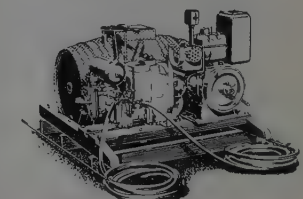
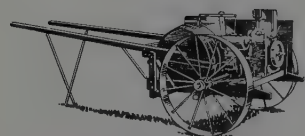
Pullar & Nephew, Ardmona	15 plants
Turnbull Bros., Shepparton	7 plants
Toomuc Valley Orchards	6 plants
The Eagle Family, Harcourt	7 plants
Government and Defence Plants	
throughout Australia	62 plants

**AND NOW ASSISTING THE
NATION'S WAR EFFORT BY
SUPPLYING SPRAY PUMPS
FOR ARMY REQUIREMENTS**



HEADLINE FEATURES:

1. Totally enclosed roller bearing Ronaldson-Tippett Engine with automatic lubrication.
2. Engine protected by combined moisture trap and dust cleaner against spray and dirt. Magneto and spark plug specially protected.
3. Totally enclosed spray pump with all main working parts running in an oil bath.
4. Replaceable valve seatings and valves, all giving three times the usual life.
5. Silent roller chain connects Engine and pump on large plants and V belt drive on small plants. Both silent and highly efficient drives.
6. Agitation has been given special consideration on all Plants to ensure a thoroughly mixed and consistent spray.
7. Vats made of special timber exclusive to Ronaldson-Tippett. Extra strong wheels; particularly strong frames, well stayed. Special sand washers on wheels. Strainers immediately get-at-able without breaking joints. Big doors on vat for easy filling. Many other features listed in printed matter.
8. In the construction of Plants throughout there is an unseen inbuilt quality which means strength, reliability, long life and satisfaction with exceedingly low upkeep.



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CLASSIFIED INDEX OF ORCHARD PESTS AND DISEASES (Continued).

Description of Pests as Illustrated.

Orange Moth.—The larvae of this moth feed on the leaves and young shoots, and are very destructive. The caterpillars of this moth destroy young flowers, buds and young shoots or Orange and Lemon, as well as the foliage.

Painted Apple Moth.—The caterpillars are covered with dark grey tufts of hairs on back near tail. They do great damage by eating the epidermis or surface of the leaves, also young shoots. These moths often appear when the flowers of Apples, Pears, Quinces, etc., are commencing to show. It may therefore be necessary to spray early.

Pear Phytoptus or Pear Leaf Blister Mite. — These mites, by sucking away the juice of the leaves, cause them to turn brown and nearly black. Also attacks fruit.

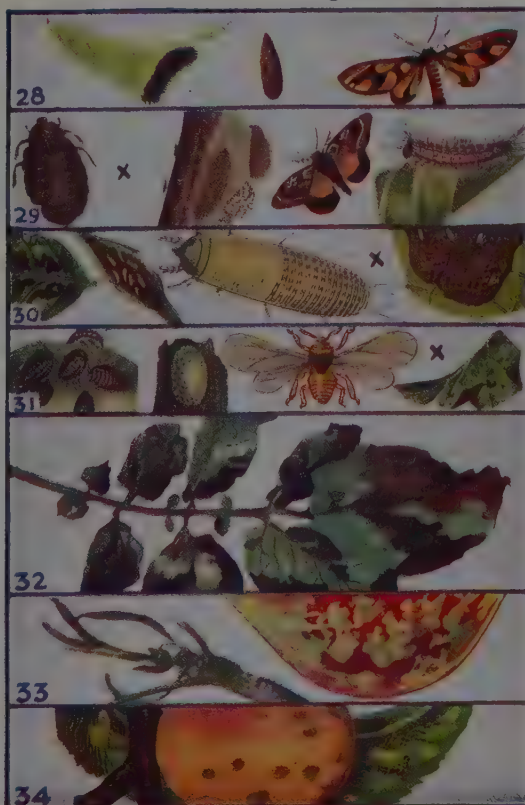
Phylloxera.—Attacks leaves and roots, growth becomes stunted, and leaves turn yellow.

Potato Blight (Irish).—Attacks Potatoes, Tomatoes, etc. The first indication seen on the leaf is a slight reduction in the intensity of the coloring matter, followed by the appearance of the brownish blotches at the edge of the leaf. In humid weather they spread with immense rapidity. The disease travels down the haulms, and the plant may within a few hours become a blackish mass, emitting an evil odor. Wet seasons favor the disease.

Powdery Mildew.—A serious disease, which attacks leaves, shoots, blossom-buds and fruits of Apples and Pears. Leaves and buds become covered with glistening white masses; fruit is disfigured and small.

Prune Rust.—Attacks Plum trees. Golden yellow pustules on young wood form cracks; sometimes twigs die. Hard scabs form on fruit—useless for canning. Leaf injury means poor crop next season.

Pest or Disease. (X magnified.)



Methods of Control of Insect Pests and Plant Diseases (illustrated above).

(28) **ORANGE MOTH** (*Conogethes punctiferalis*).—Spray with Arsenate of Lead when observed.

(29) **PAINTED APPLE MOTH** (*Teia anartoides*).—Attacks fruit trees, also garden plants and shrubs. Spray with Arsenate of Lead, same as for Codling Moth (see No. 11).

(30) **PEAR PHYTOPTUS OR PEAR-LEAF BLISTER MITE** (*Phytoptus pyri*).—Spray in spring, when buds commence to swell, Red Oil, 1-25, or Lime-Sulphur: the latter assists in checking Black Spot.

(31) **PHYLLOXERA** (*Phylloxera vastatrix*).—Plant Phylloxera resistant vines.

(32) **POTATO BLIGHT** [Irish] (*Phytophthora infestans*).—Spray with Bordeaux Mixture, 8-10-40. Commence spraying when the plants are from 4in. to 6in. high, and continue to spray every 10 days or two weeks, making in all five or seven sprayings. Use at least 80 lbs. pressure

to the square inch, and the three-nozzle arrangement, so that the spray will be thrown each side as well as on top. For Potatoes, use clean seed dipped in Formalin.

(33) **POWDERY MILDEW** (*Podosphaeria leucotricha*).—In winter, prune off and burn infected shoots. Spray with Lime-Sulphur, 1-30, between open cluster and pink stage; Precipitated Sulphur, 10-100, at petal fall, and again (with the last-named spray) early in January. If disease is troublesome, middle of February.

(34) **PEACH RUST** (*Puccinia pruni*).—Spray Bordeaux, 6-4-40, at the pink bud stage and follow with Dry Mix Lime Sulphur as for Brown Rot.

DUSTING.

The method of dusting trees with insecticides and fungicides instead of, and in addition to, spraying, has met with favor. Points claimed in favor of dusting are its efficacy, ease of application, and consequent saving of labor; the dual application of powdered insecticides and fungicides in one operation.

In vegetable and flower culture dusting is quite an accepted practice.

The Only Spray to Combat Citrus Pests
NEPTUNE WHITE SPRAYING OIL



That our Chemists' research in this direction has been successful is evidenced by the volume of letters received from leading growers throughout Australia—high in their praise of NEPTUNE WHITE SPRAYING OIL—a spray which has proved a definite check to Aphids, Red Spider, Mealy Bug, White Louse, San Jose, and all other scale pests.

Trees sprayed with NEPTUNE WHITE SPRAYING OIL will remain free from orchard pests for a far greater period than that when other sprays are used.

MARKETERS OF:—NEPTUNE PREPARED RED SPRAYING OIL ("A," "C" OR HEAVY BASE)—NEPTUNE PALSOL (PREPARED PALE OIL)—NEPTUNE CLARIFOL (WINTER WHITE OIL)—NEPTUNE "WINSOL" GENERAL PURPOSE WINTER SPRAYING OIL — NEPTUNE LIME SULPHUR SOLUTION (CLEAR, AMBER-COLORED FREE FROM SLUDGE)—BERGER'S ARSENATE (POWDER OR PASTE)—GENUINE BLACK LEAF 40—NEPTUNE LIME—POWDERED SULPHUR—COPPER SPRAY — NEPTUNE SPRAY SPREADER.

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CLASSIFIED INDEX OF ORCHARD PESTS AND DISEASES (Continued).

Description of Pests as Illustrated.

Red Mites, Bryobia, Etc.—The young mites are red, becoming brownish when fully grown. This species is larger than the common so-called "Red Spider." Eggs red, globular, these are often deposited on young fruit spurs and garden foliage.

Red Scale of Orange.—A small reddish brown scale insect; attacks fruit, leaves and branches, also Roses and garden shrubs; spreads very quickly.

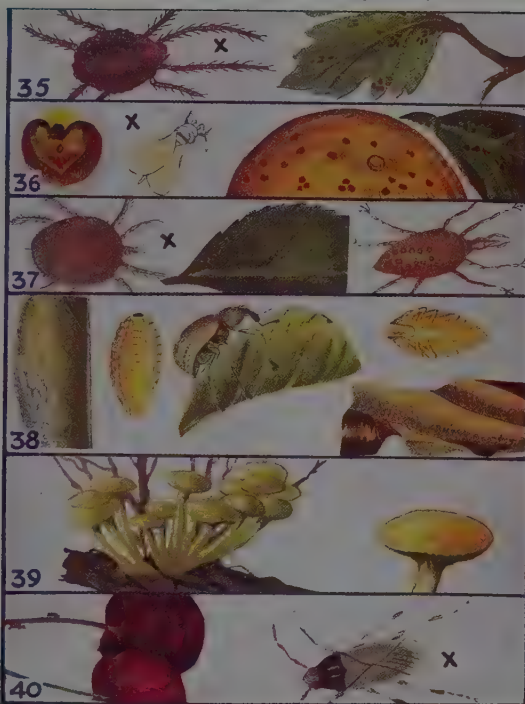
Red Spider.—The sap is sucked by numbers of these insects from the leaves, causing them to turn yellow. It is difficult for the amateur to locate the pest until a certain amount of damage is done.

Root Borer.—The grub attacks trees by tunnelling along the roots, and the beetle by eating the leaves. The beetle climbs the tree, fastens the leaves together with a gluey substance, and then lays her eggs. When hatched the young grubs drop to the ground and feed on the roots. The pest usually appears on the leaves for feeding in the spring.

Root Rot (Armillaria Mellea).—A destructive root fungus, which attacks all fruit trees and many garden plants.

Rutherglen Bug.—These plant bugs insert their beaks or rostrums into the fruit and extract the juice, causing the fruit to wither, become dry, and perfectly useless; they also attack flowers and vegetables, sucking the sap and causing the plants to wither. Usually appear in the summer.

Pest or Disease. (X magnified.)



Methods of Control of Insect Pests and Plant Diseases (illustrated above).

(35) **RED MITES, BRYOBIA, Etc. (Bryobia pratensis).**—They attack fruit trees, also garden plants, flowers, vegetables, etc. Spray with Lime-Sulphur or Red Oil, 1-20, when buds commence to swell. If mites are present on leaves in summer, spray with White Oils or Nicotine Solutions, Clensel, etc.

(36) **RED SCALE OF ORANGE (Aonidiella auranti).**—Spray same as for Lemon Leaf and Peel Scale. When young are hatching in summer Tobacco Sprays could be used. Fumigate.

(37) **RED SPIDER (Tetranychus telarius).**—Same as for Red Mites. (See No. 35.) For Red Spider on beans spray as above or dust with finely powdered sulphur.

(38) **ROOT BORER (Leptops squalidus).**—Attacks Apples, Pears, vines, etc. Place a 3½ in. zinc band round tree trunk 18 in. from ground. Destroy all beetles observed. Keep orchards clean in the spring, as the insects lay their eggs on weeds, leaves, or suckers. Spray with Arsenate of Lead. Hymenopterous (wasp) parasites are valuable. Jar the trees over a blanket; gather and destroy the beetles.

(39) **ROOT ROT (Armillaria mellea).**—Remove and destroy affected trees in order to prevent the disease spreading and dress the soil with Sulphate of Iron and Quicklime before replanting.

(40) **RUTHERGLEN BUG (Nysius vinitor).**—Spray with Benzole Emulsion, Nicotine Solutions or Clensel, when the bugs appear in young state. Apply Pyrethrum or Nicotine Dust. Keep down weeds. Smudge fires will drive them away from orchards.

Mealy Bug (Pseudococcus longispinus).—Small destructive insects, light yellow to grey, covered with powdery substance. Spray with tobacco preparations, or benzole emulsion.

Pear Root Aphis (Eriosoma pyricola).—Closely allied to woolly aphis; the former works entirely underground. Scatter paradichlorobenzene (P.D.B.) on surface of soil and dig in, or place in hole 6 in. deep excavated around tree. Use 3 to 10 oz. P.D.B., according to size of tree. Dip young trees before planting in tobacco water or red oil solution.

The Dicky Rice Weevil attacks citrus trees. Spray with arsenate of lead, 1-20, as soon as observed (generally early in November).

SHELL

HORTICULTURAL PRODUCTS

MANY YEARS OF HIGHLY SCIENTIFIC STUDY AND RESEARCH. BOTH IN THE LABORATORY AND IN THE FIELD, HAVE GONE INTO THE PERFECTING OF SHELL SPRAYING OILS AND GRAFTING MASTICS, WHICH TODAY ARE RECOGNISED ALL OVER AUSTRALIA AS THE STANDARD OF QUALITY, EACH FOR ITS PARTICULAR JOB.

SHELL WHITESPRAY.

Containing a highly refined oil for the control of Red Scale, etc., on Citrus fruits and Codlin Moth, Red Spider, etc., on Apples and Pears.

SHELL REDSPRAY.

An ideal spray for use in the dormant season on deciduous trees for the control of Red Spider, San Jose Scale, Woolly Aphis, etc., etc.

SHELL PALESPRAY.

This is an emulsified spray used for the same purposes as Redspray, and can be combined with Bordeaux. Recommended where hard water exists.

SHELLICIDE "D."

A more highly refined oil than either Pale or Red-spray and can therefore be used with Bordeaux or Lime Sulphur up to the pink tip stage of Apples, thus eliminating one spray operation.

SHELL UNIVERSAL WINTERSPRAY

A recently introduced but highly successful spray for use on Peach and Cherry trees, for the control of Green Peach Aphis, Black Cherry Aphis, San Jose Scale and Red Spider. A boon to growers as it does the work of two or three sprays and does not burn the hands or face. The stain wears off in a few days.

ALL AVAILABLE IN 4-GALLON TINS AND 40-GALLON DRUMS.

SHELL GRAFTING MASTICS

GRAFTING MASTIC "H"

is a wax base grafting preparation—ideal for sealing grafts and for healing large tree wounds, etc.

COLGRAFT

is a bituminous preparation giving an impervious and strong seal—a particularly useful mastic which may be thinned out with water to any desired consistency.

ALL AVAILABLE IN 1, 5, 10 & 36 Lb. TINS.

PLACE YOUR ORDERS EARLY WITH YOUR NEAREST SHELL AGENT AND SO AVOID DISAPPOINTMENT.

THE SHELL COMPANY OF AUSTRALIA LIMITED (Incorporated in England).

CLASSIFIED INDEX OF ORCHARD PESTS AND DISEASES (Continued).

Description of Pests as Illustrated.

San Jose Scale.—Attacks fruit trees—Pear, Apple, Cherry, Plum, Apricot, etc., also Roses, shrubs and hedge plants. A small scale insect of light orange color; attacks trunk, limbs, foliage and fruit. Is very destructive. When Apples and Pears (fruit) are attacked, light red rings appear on the fruit around the scales.

Scab of Orange and Lemon.—Lemon Scurf, dingy white scurfy patches. Grey scab of Orange, the patches are flat, almost round, and break up into minute flakes. Greyish-brown scab of the Lemon occurs on both ripe and green Lemons. False Melanose is another form of scab.

Shot Hole.—Attacks blossom, leaves, twigs and sometimes fruit of Apricot, Cherry, Plum, etc. Blossom infection looks like frost injury. Leaf infection occurs very early, often reducing leaves to skeletons. Gum often exudes from ruptured bark. Scabbiness appears on Apricot fruit.

Slug of Pear and Cherry.—The larvae attack the leaves, doing serious mischief by devouring the skin of the upper side of the leaf. The underside is left untouched, and turns to a deep brown color. They attack the tree mainly in late spring, when the foliage is young.

Strawberry Beetle.—In November and December these insects do most damage; the beetle attacks the leaves and flowers, and the larvae bores into the plant.

Thrips.—One of the worst insect pests. All kinds of fruit, flowers and vegetables, especially Onions, are attacked.

Tomato Moth.—The eggs of this moth are deposited on leaves and stem. The young larvae crawl up the stem and eat their way at once into the flesh, which is destroyed. There is scarcely any limit to the number of plants this pest will attack, cereals, maize, vines, garden plants, etc.

Methods of Control of Insect Pests

(41) **SAN JOSE SCALE** (*Aonidiella pernicios*).—Burn all prunings promptly. Spray in late winter with Red Oil, 1-20 or Lime-Sulphur, 1-10. In summer, when scales are moving, spray with White Oils or Nicotine.

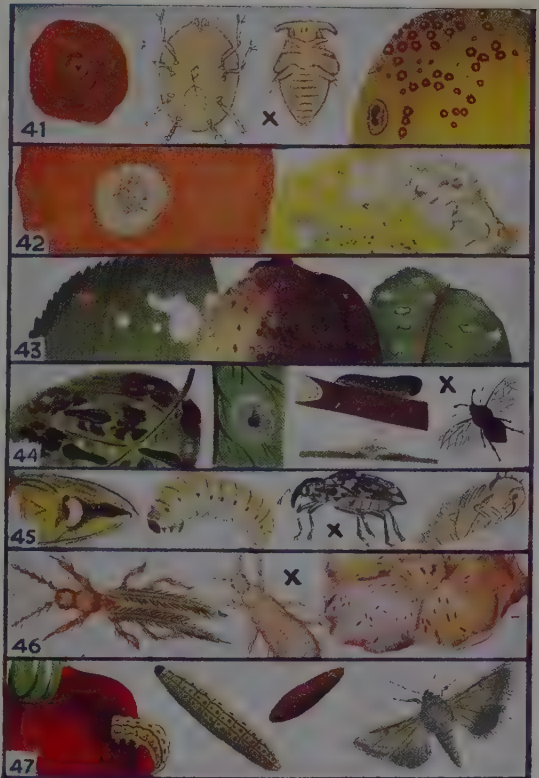
(42) **SCAB OF ORANGE AND LEMON.**—As this disease attacks new growth, spray with Bordeaux (3-3-50), to which has been added 1 per cent. of Red Oil, before the new growth begins.

(43) **SHOT HOLE** (*Coryneum Beijerinckii*).—Spray Bordeaux, 6-4-40, before leaves fall in autumn; 6-4-40 at "pink" stage. Use lime casein spreader with the Bordeaux mixture.

(44) **SLUG OF PEAR AND CHERRY** (*Caliroa limacina*).—Cherry, Peach, Quince, Plum and other trees are attacked. Spray with Arsenate of Lead. The first spray for Codlin usually kills the Pear Slug. Spray unbearing trees or Hawthorn hedges if necessary. Dust with lime, powdered Lead Arsenate, Sulphur, ashes, or sand.

(45) **STRAWBERRY BEETLE** (*Rhinaria peridix*).—Spray with Arsenate of Lead before fruit is ripening. As a deterrent, spray with Benzole Emulsion.

Pest or Disease. (X magnified.)



and Plant Diseases (illustrated above).

(46) **THRIPS.**—When not in plague numbers, thrips do not seriously affect fruit crops. Scientific investigations prove that plague infestations as well as freedom from the pest, can be forecast from the numbers of insects present in the autumn and early spring. Pyrethrum and derris dusts kill thrips and act as repellants for two days with each application.

(47) **TOMATO MOTH** (*Heliothis armigera*).—Use poisoned baits, bran and arsenic, also Arsenate of Calcium. Spray with Arsenate of Lead or dust with powdered Arsenate of Lead. Keep soil around plants well forked.

FUMIGATION.

Fumigation with Hydrocyanic Acid Gas kills red scale of citrus trees and various other scales and pests. Tents are placed over trees, calcium cyanide dust, 1 oz. per 100 cub. feet, is forced in by means of a hose and blower. On being released to the air hydrocyanic acid gas is formed. This has largely superseded the "pot" method of mixing cyanide, sulphuric acid and water.

Fumigation is done (on still nights) from late December to early June; the temperature should not be below 50 deg., and humidity should not exceed 80 degrees.

CLASSIFIED INDEX OF ORCHARD PESTS AND DISEASES (Continued).

Description of Pests as Illustrated.

Transit Rot.—Attacks fruits only through skin injury. It appears as a cottony mould, at first white, but quickly changing to black. The fungus produces a rot which at first is brown and quite firm; then the cells rapidly break down and the fruit becomes a watery mass.

Vine Hawk Moth (Silver Striped).—The caterpillar of this moth strips the vines of their leaves in a very short time, even quicker than the caterpillar of the Vine Moth.

Vine Moth.—The caterpillar, or larvae, of this moth attacks the leaves and young Grapes, also Virginia Creeper, and will very quickly denude the vines and creepers of their foliage.

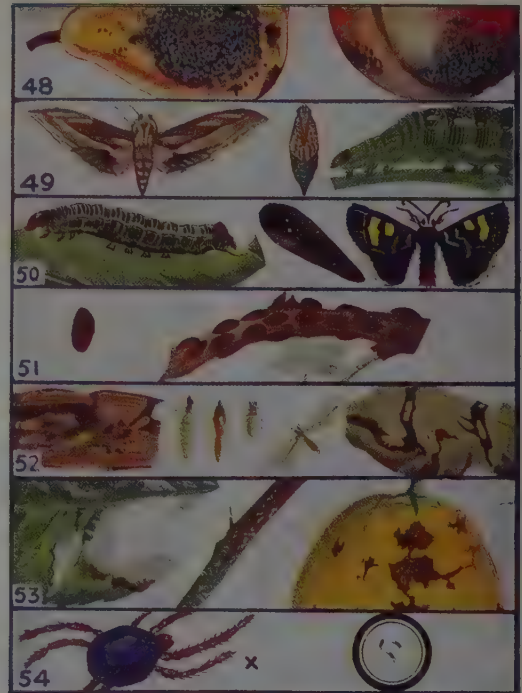
Vine Scale.—One of the largest scales infesting plants. Attacks vines, Jap. Plums, etc. This scale has become a pest in flower gardens. Many kinds of creeping plants, viz.:—Tacsonia, Mandevillea, Cobaea, etc., being attacked.

White Ants.—This destructive pest attacks timber trees, vines, Apricot, Orange and Peach trees, also furniture, etc.; is a very serious enemy.

Wither Tip of Orange and Lemon.—Often called "Die-back," as twigs die from the top downwards. ("Dieback" of Apple trees may be associated with this disease.) On the undersurface of the leaf whitish grey blisters arise. The leaf withers at the tip and is gradually destroyed; blotches appear on stem.

Pea Mite.—A serious pest. The body of this mite is dull blue. They have rather long red legs. They run very rapidly when disturbed, and soon get out of sight, hiding in crevices or under lumps of earth.

Pest or Disease. (X magnified.)



Methods of Control of Insect Pests and Plant Diseases (illustrated above).

(48) **TRANSIT ROT** (*Rhizopus nigricans* Ehr., *Rhizopus arrhizus* Fisch).—Handle fruit carefully, preventing skin injury. Sterilise cases in boiling water. Spray shed interiors and all wood-work with 1 lb. bluestone to 5 gallons water. After picking and packing, pre-cool fruit immediately for two days at 35 deg. F., and transport to market in iced insulated trucks or louver trucks.

(49) **VINE HAWK MOTH, SILVER STRIPED** (*Charocampa celerio*).—Spray with Arsenate of Lead, whenever observed.

(50) **VINE MOTH** (*Phalaenoides glycine*).—Spray with Arsenate of Lead, whenever observed. Keep soil at the foot of the vines worked up to destroy chrysalids in soil.

(51) **VINE SCALE** (*Eulecanium persicae*).—Sprays same as for Olive or Black Scale. Spray in summer with Tobacco extract when young are observed.

(52) **WHITE ANT OR TERMITE** (*Termes lacteus*).—Apply Manurial Insecticides to roots. Apply Paris Green dust to the runs. Inject Carbon Bisulphide if nests located.

(53) **WITHER-TIP OF ORANGE & LEMON** (*Phoma omnivora*).—Prune out all diseased

wood and spray with Bordeaux Mixture (6-4-40) or Copper Soda (6-9-40).

(54) **PEA MITE** (*Pentaleus major*).—Attacks Peas, Onions, Potatoes, Beans, Beet, etc., also flowers. When mites appear, plough deeply and destroy all weeds, particularly Capeweed as the mites breed on these. They will not live for any length of time on clean cultivation, but fairly quickly migrate across it from pasture paddocks, dirty headlands, etc. Any plot freed from mites by cultivation or other treatment may be kept free by placing a trail of Creosote, or a mixture of Kerosene and Phenyle, about four inches wide, right across the plot. The mites will not be able to cross this for a few weeks.

Take 1 part of Carbolic Powder (15 per cent.), 3 parts Lime, Super. or Gypsum, and broadcast over the plants, and work into soil at the rate of 2 cwt. per acre.

Tobacco Dust and Lime in equal quantities have been used in a similar way with some success by market gardeners. Manurial Insecticide used at the rate of 1½ to 2 cwt. to the acre has also been fairly effective in some parts.

Spray with Nicotine solutions.

Dust with Nicotine and Creosote dust.



Prevent pre-harvest drop!

Spraying with "Phymone" about a fortnight before picking prevents the weakening of the stalk and consequent pre-harvest drop.

Dropped fruit is virtually useless, but picked fruit retains full flavour, colour and value.

Trials were conducted in 1941 by Government Agricultural Departments on different types of

fruit in Victoria and South Australia, with spectacular results. One Government test recorded a loss of only 9% from sprayed trees compared with 41% from unsprayed trees.

Application is simple . . . merely spray it on the trees so that fruit stems are wetted. Time: 10 to 14 days before maturity.

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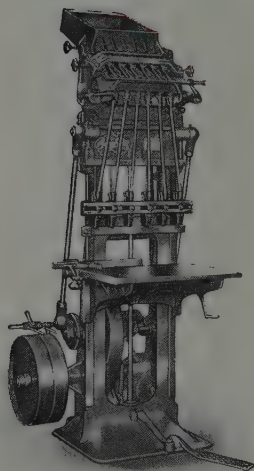


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EDITORIAL

WITH THE DAWN of 1945 came sobering thoughts regarding the progress of the war, particularly in the European theatre. Early hopes of the ending of the war in Europe by 1944 were dispelled by German counter attacks. Now, as this article is written no one is forecasting the date of the end of the war against Germany, much less that of the conclusion of the war against Japan.

After Allied victories in France and Belgium a certain amount of complacency became evident, not only here, but in other parts of the world, leading to a slackening of the war effort. It is to the credit of the people who have been rudely awakened on this score that they have largely responded to the realities of the situation.

There are dangers still to be guarded against—a slipping back into complacency, war weariness, and disunity.

Instead of complacency and war weariness, we must redouble our efforts and be prepared to tread the long road to victory—to complete victory, to the complete and utter destruction of the evil forces of fascism and barbarity. No price is too heavy to pay for this victory. We must guard against any war weariness which would lead to the thoughts of a negotiated peace. Such a peace would be a delusion, and would pave the way for the next war of greater brutality than the present one, a war in which the forces of evil would be so arraigned as to ensure the shattering of the measure of freedom which has been so hardly won over the centuries.

Mistakes have been made which have led to a measure of disunity among the Allied nations. Tempers became frayed and hard words were bandied.

There are times for plain speaking, but with tolerance and good will, remembering that mistakes can be corrected. Let us be united in our unflinching efforts to win the war and the freedom we cherish. Each one of us can exercise that large spirit of toleration and probably assist others, in our daily walk and conversation, to perceive the grand objectives for which we struggle.

[Later: Since the foregoing was written, the Germans have been heavily defeated by the Russians on the Eastern front. Substantial progress has been made by the Allies on the Western front. Clearly the end of the European war is in sight.]

We need this spirit of goodwill and unity now among the peoples of all the Allied nations to win the war and to win the peace. It is evident that the freeing of some of the European countries from the Nazi yoke has not brought peace to the peoples.

What will be the reaction in Australia when the war ends? Who can foretell?

In war, as in peace, can we have grand objectives? Is it possible to envisage a planned economy which will do away with unemployment, poverty and malnutrition—a planned economy in which there is room for the development of the talents of all the people—in particular the children.

People of goodwill everywhere are concerning themselves about the New Order for Society. This means little or much according to our individual reactions. This is not the place to expound any theory. This is only a plea for a statement of the case, however brief, and for a request for the examination of every well-considered plan for the future. Mr. Robt. Ewing, C.M.G., previously Federal Commissioner of Taxation, wrote a treatise entitled

"A Plan of Economic Reconstruction." Mr. William Harfield, well-known Australian author, has just written "Australia Reclaimed." These and other books are worth reading. Writers here and in other countries have given expression to thoughts which are stirring in the community. Some folk say "Christianity has failed," others say "It has never been tried."

Readers who are interested to develop this theme are invited to express their views in the monthly issues of the "Fruit World."

◆ ◆ ◆ ◆ ◆

In this Annual is published a comprehensive article setting out many phases of the fruit industry and dealing at length with many of the items which have been referred to previously more briefly in these editorial columns. These include the need for continued horticultural research, publicity on nutrition to counteract the evil propaganda of denatured foods and patent medicines, the preservation of our export industries, the planning of the development of our resources, including the checking of soil erosion and other matters.

We should like to conclude with an expression of appreciation to the men and women in our fighting services and industries, to the men and women who are bearing heavy burdens in business and in the home in these days of strain, and separation from loved ones. Our fighting lads are worthy of their forbears. We will be worthy of them by our endurance. A special word of sympathy is added to those who have suffered bereavement or who have loved ones in prisoner-of-war camps abroad.

May the time be not far distant when there will be victory—complete victory—and then reunion and all that goes to make our loved country in truth and reality the paradise of the Pacific.

METRIC SYSTEM.

Lineal.

25.4 millimetres or 2.54 centimetres	= 1 inch
.305 metres or 30.48 centimetres	= 1 foot
0.914 metres	= 1 yard
3.28 feet or 39.37 in.	= 1 metre
1,093 yds. 22 ins.	= 1 kilometre

Square.

6.45 sq. centimetres	= 1 sq. inch
9.29 sq. decimetres	= 1 sq. foot
0.84 sq. metres	= 1 sq. yard

Cubic.

16.39 cu. centimetres	= 1 cu. inch
0.028 cu. metres	= 1 cu. foot
0.76 cu. metres	= 1 cu. yard
35.3 cu. feet	= 1 cu. metre

Capacity.

1 litre	= 1.76 pints
1 dekalitre	= 2.2 gallons
1 hectolitre	= 22 gallons
1 hectolitre	= 2.75 bushels
1 gallon	= 4.55 litres

Weight.

1 kilogramme	= 2.2 lb.
1 oz.	= 28.4 grammes
1 gramme	= 15.43 grains

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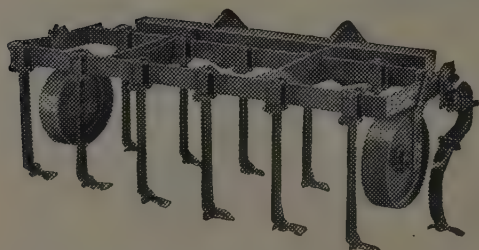


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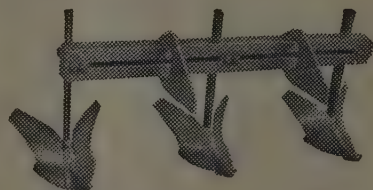
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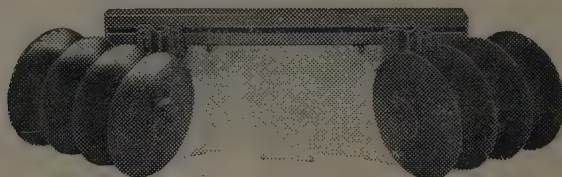


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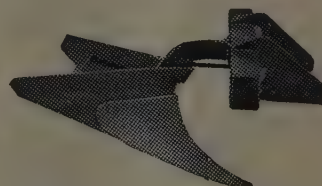
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BRANCHES AND AGENCIES THROUGHOUT THE COMMONWEALTH



Area and Production in All the States

THE AUSTRALIAN FRUIT INDUSTRY is an important national asset, supplying healthful products to citizens of this country, and introducing needed wealth through exports. Although overseas exports of Apples and Pears have ceased during the war, space is found on overseas ships for dried and canned fruits.

With the wide range of soil and climate in Australia, all kinds of fruit are produced—tropical fruit in the North, and cold climate fruits in the South.

The statistics contained in this article are interesting, details being given of the area and production of fruit in the several States.

Broadly speaking, there are no commercial fruits native to Australia. All have been introduced. While some of the standard varieties of Apples and Pears are hundreds of years old, it is to the credit of this country that new varieties of these fruits have been developed here, some of them winning world wide recognition.

The Washington Naval Orange came to us from S. America, via the U.S.A.

New varieties of various fruits, nuts and berries are constantly being introduced (under plant quarantine regulations), and new varieties from local sources are developed; thus a high standard is being maintained.

Apart from the fact that the fruit industry supplies the nation with a commodity essential to the health of the people, the economic aspect is that the industry provides employment for a vast army of workers, in harvesting, processing, packing, transport and marketing, as well as others in the production of needed equipment—irrigation machinery, implements, spray material, etc.

:: :: :: ::

During the war, controls of various kinds, also price fixing regulations have been imposed under the National Security Regulations. Among the fruits included are Apples, Pears, Oranges, Lemons, Pineapples, Bananas, Peaches and dried fruits.

Queensland.

There are just on 32,000 acres under fruit in Queensland, Pineapples and Bananas being the principal items. However, there are now more Bananas produced in N.S.W. than in Queensland: the Bunchy Top disease took a heavy toll of the Queensland Banana industry, and this disease

has still to be watched and controlled wherever Bananas are grown.

Queensland produces more Pineapples than any other State, the area in the 1943-44 season being 6,940 acres, and the production 2,000,844 dozen. Under a control system each grower has to provide a proportion of his crops for the production of canned Pineapples and Pineapple juice for the fighting forces.

The production of Custard Apples is confined almost exclusively to Queensland, the area under this delicious fruit being some 417 acres, and the production 34,264 bushels. Pre-war, Custard Apples were becoming noticeable in southern markets, where a good trade was being steadily developed, under wartime conditions there are transport difficulties. Papaws, too, are a Queensland-grown fruit, 1,194 acres being devoted to their culture as compared with only 12 acres in northern New South Wales. Papaws are rich in healthful vitamins and mineral salts, and a substantial interstate trade has been developed.

Queensland is the native home of the "Bauple Nut" (*Macadamia ternifolia*): this is now being grown in some of the other States, and new varieties with softer shells have been developed.

Queensland has a Fruit Marketing Act under which producers can decide by majority vote on the controlled marketing of products. Under the Act the Committee of Direction of Fruit Marketing is effectively functioning.

During 1944 a Royal Commission on the Fruit and Vegetable Production and Marketing took evidence in Queensland. A summary of the finding was published in the "Fruit World."

Further details of the Queensland fruit industry are given in another section of this Annual.

New South Wales.

Fruitgrowing is a substantial industry in New South Wales, the wide range of climate making it possible to grow many types, including Bananas and Pineapples in the warm northern areas to the colder climate, Apples and Pears and berry fruits in the mountain areas and cooler places. The total area under fruit (including vines) in this State is over 97,500 acres.

N.S.W. is the principal producer in the Commonwealth of citrus fruit and Bananas.

It will be observed from the statistical tables that the area devoted to citrus fruits is over 29,000 acres, of which 21,948 acres are planted with Washington Navel, Valencia and other Oranges. The production of Oranges in the year 1933-34 was over 2½ million bushels. Oranges, Grapefruit, and Mandarins are grown in the Murrumbidgee and other irrigation areas, the Hawkesbury River region, the hills around Sydney and other places. Lemons are also grown in these places as well as in widely scattered areas.

Bananas thrive in the rich northern Rivers districts. The area of 12,868 acres under Bananas and a production of 1,426,404 bushels in 1933-4 places N.S.W. substantially ahead of Queensland in the production of this nutritious fruit.

Apples and Pears are grown commercially over a wide area in N.S.W., though recent official advice is that the major centres, because of suitable soil and rainfall, are Orange, Batlow and Armidale.

In these places growers have organised into successful co-operative groups with well equipped cool storage and packing facilities.

Batlow has shown commendable enterprise in the production of Apple juice and other products. The blending of Pear and Apple juice produces a very palatable drink. Important, however, as are the cool stores in country centres, there is urgent need in Sydney for increased fruit cool storage space. In the Sydney Municipal Markets a new (temporary) cool store, now in course of construction, will provide for the storage of an additional 60,000 cases.

N.S.W. producers have the benefit of being able to send their produce to Sydney, the greatest market centre of the Commonwealth. This market, however, is open to receive fruit and vegetables from the other States.

Victoria.

With over 112,000 acres under fruit and vines Victoria is the principal fruitgrowing State of the Commonwealth.

The major irrigation settlements are on the Murray and Goulburn River systems. At Mildura, Irymple, Red Cliffs on the Murray, vines and citrus thrive: in the Goulburn Valley there are grown canning Pears, Peaches, Apricots and other fruits, also Tomatoes and vegetables in substantial quantities. Co-operative canneries, with their cool storage, dehydration and other facilities, are successfully established at Shepparton, Ardmora and Kyabram in the Goulburn Valley.

More Pears are grown in Victoria than in any other State.

Among the principal Apple and Pear growing districts are Harcourt, Gippsland, and the Mornington Peninsula, and the Melbourne metropolitan area. These fruits, however, are commercially grown in many places throughout the State, including Portland and Quantong, where Tomatoes also constitute an important crop.

Harcourt is an irrigation district on the Coliban system, the water also being used to supply Bendigo, where Tomatoes are grown in substantial quantities. There are urgent demands for increased water storage facilities for the Goulburn Valley, Harcourt and other places. In other districts many growers provide their own storage dams: irrigation is possible in many of the metropolitan orchards from the city and suburban reticulation systems.

In many districts, growers have organised into co-operative societies for cool storage, packing, marketing and the supply of orchardists' requisites.

The citrus industry is organised by the Victorian Central Citrus Association, this Association being linked with

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similar organisations in N.S.W. and South Australia for supplying the main Eastern State markets.

In the provision of cool stores Victoria has shown the greatest development.

South Australia.

High quality fruit of many kinds is grown in South Australia—Apples, Pears, Citrus, Stone and Berry fruits—but in one respect this State takes precedence over all others, and that is in respect of Grape growing, particularly for wine. The area under vineyards in 1942-43 was 58,202 acres, from which were produced 15,132,072 gallons of wine (out of a total Australian production of 19,793,176 gallons), also 24,516 tons of Raisins and Currants and 1,218 tons of table Grapes.

The Grapes are grown in the Murray Valley (under irrigation, at Angaston, Clare and on the hills and plains around Adelaide. In the Murray Valley are also grown some of Australia's best Oranges—fruit which commands a premium on the Melbourne, Sydney and Adelaide markets.

When the Apple and Pear Acquisition plan ceased to operate in South Australia in 1943, the growers voluntarily organised to market their fruit on a planned basis, with such satisfactory results that growers are now making plans for their third year of operation on this State-wide basis.

The South Australian Fruitgrowers and Market Gardeners Association has developed in a very substantial co-operative enterprise: this organisation is divided into sections for handling different classes of fruit and vegetables, and also conducts a big business in the supply of growers' requisites.

Progress is being made in the production of canned and dried Apples, also Apple juice and Apple vinegar. So far, the canned and dried Apples are mainly for the fighting forces. It is to be hoped that these young industries will be encouraged in every way in order to provide for present and post-war developments.

South Australia possesses experimental orchards in the Adelaide Hills, and also in the Murray Valley. Here are conducted long range experiments in pruning, manuring and general fruitgrowing practices. Field days are held periodically in these well conducted experimental orchards, and growers have expressed appreciation for the information which has been made available.

Tasmania.

The area under Apples in Tasmania is around 23,000 acres; the favourable conditions for production are such that Tasmania produces about half of the Commonwealth's crop of Apples. Tasmania is generally known as the "Apple Island." The average annual crop is between 5,000,000 and 6,000,000 bushels. In pre-war days the average overseas export was 2½ million bushels, hence it

will be seen that on the outbreak of war, when overseas exports ceased, a serious position had to be faced. Even if it were desired to send more Apples to the mainland, the shipping facilities were not available. The trouble was accentuated when years of heavy production came along, the crops then being about 8,000,000 bushels.

The Commonwealth Government's Apple and Pear Acquisition plan was welcomed in Tasmania, although growers have never ceased to claim that the present rate of compensation should be increased to meet ever-rising costs of production.

After initial delays and difficulties associated with machinery, fuel and manpower, the processing of Apples has now assumed substantial proportions, with all the possibilities of establishing a permanent industry for canned and dried Apples, Apple butter, and Apple juice and other products.

Fruitgrowing is Tasmania's largest primary industry. The climate of Tasmania is particularly suited to the production of berry fruits. The high quality Strawberries, Raspberries, Loganberries, Black and Red Currants, etc., find a ready outlet now when processed as jam, pulp or juice. The discovery of the rich vitamin C value of Black Currants has created a demand for this luscious fruit.

Western Australia.

While many kinds of fruit are successfully produced in the rich soils and genial climate of Western Australia, the greatest emphasis has been placed on Apple production as will be seen from the fact that out of 21,154 acres under fruit culture, no less than 12,738 acres are for Apple production. After citrus, the next heaviest plantings are Pears.

The general situation with regard to Apples and Pears in Western Australia was largely similar to that of Tasmania, in that the industry was built on the export trade. The high quality Apples in "redwood" boxes became familiar in the British markets.

Hence, when export ceased, Western Australian growers welcomed the Federal Acquisition plan, though here again figures have been presented to the authorities in the request for increased compensation.

Several interesting developments have occurred, including the successful export of W.A. Granny Smith Apples to interstate markets, the creation of the industry for the production of canned and dried Apples, also Apple juice, the substantial increase in the local consumption of Apples and Pears, both by publicity and by supply of fruit to householders in the suburbs of Perth by motor vans. By means of the last mentioned "mobile units" Apples are supplied in half bushel lots to purchasers who find their own containers.

The following tables give a statistical survey of the importance of the Australian fruit industry. They are supplied by the Commonwealth Statistician and cover the year 1942-43, the latest figures available at the moment.

TABLE 1.—VINEYARDS—AREA AND PRODUCTION, 1942-43.

	Area.	Table.	Production in Tons.		Wine
	Acres.	Grapes.	Raisins.	Currants.	Gallons.
N.S.W.	16,302	5,186	7,528	1,360	2,720,934
Victoria	42,634	4,123	46,439	8,620	1,381,936
Queensland	3,040	2,621	—	—	44,030
South Australia	58,202	1,218	15,263	9,253	15,132,072
West. Australia	10,126	3,194	674	2,329	513,954
A.C.T.	3	—	—	—	250
Total	130,307	16,342	69,904	21,562	19,793,176

Cool stores are erected in the principal Apple and Pear growing centres.

In the 1943-4 season the Apple crop was 1,719,147 bushels, Pears 108,964 bushels.

The estimates for 1945 are Apples 1,490,000 bushels, Pears 118,000 bushels.

It will be noted that Western Australia has 185 acres under Bananas, the crop in 1943-4 being 19,796 bushels.

With an area of 4,633 under citrus fruits, the crop in 1943-4 was 401,218 bushels, of which 279,707 bushels were Oranges, the bulk being Washington Navels and Valencia's.

By means of watchfulness and diligence, Western Australia has been kept free of both Codling Moth and Black Spot. Other fruits grown commercially in W.A. include Peaches, Plums, Passionfruit, Apricots and Grapes—the last-mentioned being for dried fruit, for wine making and for supplying to the public as fresh fruit.

Tomato culture has developed considerably in the Western State, supplies being sent to both local and interstate markets.

The Western Australian Fruitgrowers' Association is a representative body, which is concerned mainly with Apples, Pears and citrus.

POPULATION OF AUSTRALIA.

Estimated at June 30, 1942.

N.S.W.:		Tasmania:	
Males	1,418,066	Males	121,324
Females	1,410,573	Females	118,612
2,828,639		239,936	
Victoria:		Northern Territory:	
Males	977,198	Males	6,853
Females	991,633	Females	2,067
1,968,831		8,920	
Queensland:		Australian Capital Territory:	
Males	538,018	Males	6,572
Females	499,908	Females	5,786
1,037,926		12,358	
South Australia:		Australia:	
Males	302,217	Males	3,612,794
Females	305,030	Females	3,561,453
607,247		7,174,247	
Western Australia:			
Males	242,546		
Females	227,844		
470,390			

TABLE 2.—AREA UNDER FRUIT, ALL STATES, SEASON 1943-44.

The following table shows the area under the different varieties of fruit in all States:—
(Figures supplied by Commonwealth Statistician.)

Fruit.	N.S.W. Acres.	Vic. Acres.	Q'land. Acres.	S. Aust. Acres.	W.A. Acres.	Tas. Acres.	Australian Capital Territory. Acres.	Total Bearing and Non-bearing. Acres.
Apples	14,650	22,360	5,513	7,802	12,738	22,889	66	86,018
Apricots	1,900	4,841	340	3,419	518	1,353	4	12,375
Bananas	12,868	—	7,457	—	185	—	—	20,510
Cherries	2,662	1,487	—	1,051	14	96	3	5,313
Citrus—								
Oranges—Navel	8,439	2,236	1,028	2,696	1,650	—	—	16,049
Valencia	11,669	1,721	1,037	995	1,452	—	—	16,874
Other	1,840	287	966	315	99	—	—	3,497
Mandarins	2,857	102	1,798	124	187	—	—	5,068
Lemons	3,443	1,919	489	356	538	—	—	6,745
Other	838	236	430	147	172	—	—	1,832
Coconuts	—	—	—	—	—	—	—	—
Custard Apples	5	—	417	—	—	—	—	422
Figs	248	259	(b)	259	164	—	1	931
Mangoes	4	—	577	—	—	—	—	581
Nectarines	761	330	(b)	274	202	15	2	1,584
Nuts	902	631	206	2,507	326	—	5	4,577
Olives	5	187	—	148	2	—	—	342
Passionfruit	684	178	147	—	122	—	—	1,131
Pineapples	193	—	6,940	—	—	—	—	7,133
Papaws	12	—	1,194	—	—	—	—	1,206
Peaches	8,287	14,854	1,494	1,361	813	131	6	26,946
Pears	3,524	13,504	404	1,689	933	2,331	7	22,442
Persimmons	26	(a)	—	—	1	—	—	27
Plums	2,242	3,019	1,187	711	853	336	8	8,356
Prunes	2,653	491	39	1,098	48	46	1	4,376
Quinces	543	778	—	182	50	56	2	1,611
Raspberries	—	159	—	56	—	2,095	—	2,310
Strawberries	4	241	125	100	6	454	—	930
Other Small, N.E.I. . . .	12	204	—	187	8	2,283	—	2,694
All other, N.E.I.	12	—	141	44	78	—	—	270
Total	81,283	70,024	81,928	25,521	21,154	32,135	105	262,150

(a) Not collected; (b) Included with All Other, N.E.I.

TABLE 3.—PRODUCTION, ALL FRUITS, BY STATES, SEASON 1943-44.

The total production of all fruits (other than vine fruits) is shown below, expressed in quantities as ordinarily recorded, by States:—

Fruit.	Unit of Quantity.	N.S.W.	Vic.	Qld.	S. Aus.	W.A.	Tas.	A.C.T.	Total.
Apples	bushel	1,233,758	2,326,224	482,326	894,838	1,719,147	6,736,329	2,888	13,395,510
Apricots	"	246,008	464,934	25,955	536,734	61,514	100,053	236	1,435,434
Bananas	"	1,426,404	—	662,183	—	19,796	—	—	2,108,383
Cherries	"	213,229	64,689	—	52,065	720	14,150	42	344,895
Citrus—									
Oranges—									
Navel	"	997,483	300,000	75,889	506,733	150,728	—	—	2,030,833
Valencia	"	1,093,025	229,000	83,019	118,219	117,556	—	—	1,640,819
Other	"	160,785	40,798	73,698	45,321	11,423	—	—	3,370,025
Mandarins	"	231,114	20,000	147,911	19,698	15,972	—	—	434,695
Lemons	"	298,011	162,000	53,883	50,577	88,708	—	—	658,179
Other	"	111,230	48,000	37,400	16,888	16,831	—	—	230,349
Coconuts	dozen	—	—	—	—	—	—	—	—
Custard Apples	bushel	365	—	34,264	—	—	—	—	34,629
Figs	"	25,411	13,096	(c)	19,905	13,260	—	11	71,683
Mangoes	"	111	—	49,249	—	20	—	—	49,380
Nectarines	"	54,052	23,333	(c)	16,701	19,792	1,064	80	115,672
Nuts	lb.	292,865	131,121	79,890	1,007,104	56,641	—	589	1,633,210
Olives	cwt.	215	993	—	3,802	5	—	—	5,015
Passionfruit	bushel	28,787	8,431	4,922	—	5,676	—	—	47,816
Pineapples	dozen	25,287	—	2,000,844	—	—	—	—	2,026,131
Papaws	"	1,862	—	305,274	—	5	—	—	307,141
Peaches	bushel	752,357	1,469,813	126,661	149,229	66,798	8,086	472	2,573,416
Pears	"	319,976	1,421,706	34,531	240,804	108,964	561,059	89	2,687,129
Persimmons	"	2,713	(b)	—	—	180	—	—	2,893
Plums	"	243,166	187,977	110,639	69,920	78,094	59,159	254	749,209
Prunes	"	243,688	58,415	4,679	83,911	3,779	7,246	10	401,728
Quinces	"	51,453	63,208	—	29,421	5,393	9,504	83	159,062
Raspberries	cwt.	—	2,908	—	1,070	—	75,366	—	79,344
Strawberries	"	50	4,054	1,372	2,202	118	8,571	—	16,367
Other Small, N.E.I.	"	240	6,237	—	3,023	15	51,211	—	60,726
All Others, N.E.I.	bushel	1,560	—	12,926	2,069	6,081	—	—	22,636

(a) Subject to slight revision; (b) Not collected; (c) Included with All Other

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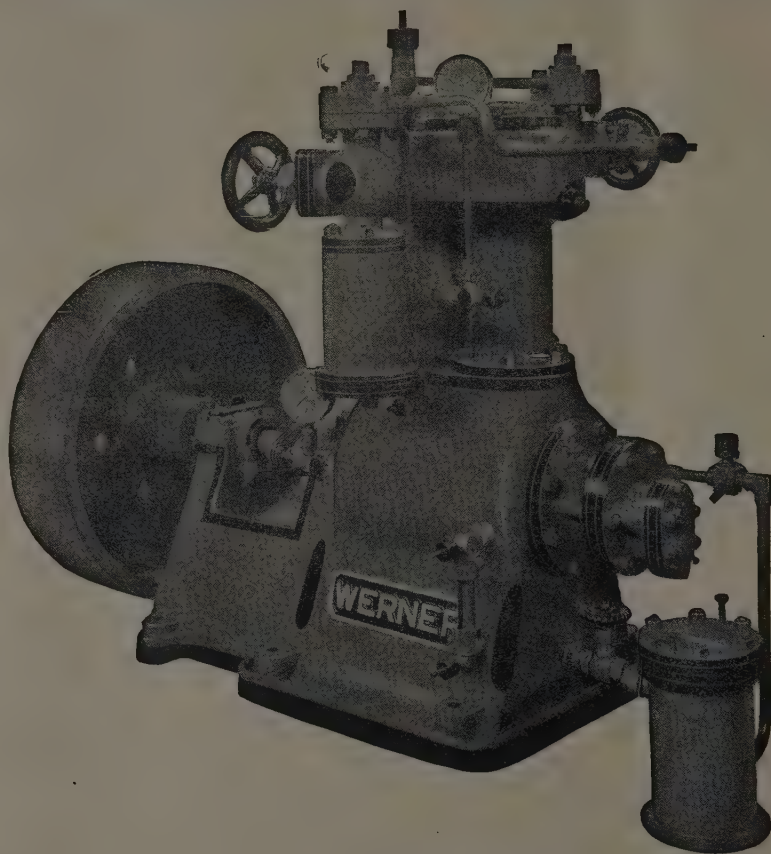
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SCIENTIFIC AND INDUSTRIAL RESEARCH WORK IN AUSTRALIA

Cool Storage of Potatoes

(By G. B. Tindale, B.Agr.Sc., Cool Storage Research
Officer and G. H. Mattingley, Potato Expert, Vic-
torian Dept. of Agric.)

SINCE THE WAR BEGAN the Potato crop has become of major importance in Victoria. In addition to the normal civilian requirements, large quantities of Potatoes are needed by the Armed Forces, for, of all the vegetables, they are the most easily transported over long distances without rapid deterioration.

Whilst the demand for Potatoes is more or less constant throughout the year, the main crop is harvested in the late Autumn and Winter months, hence it becomes necessary to store large quantities until the end of the year, when the new season's product becomes available. The usual method of storing Potato tubers in Victoria is to hold them in "pits" on the farm or in a barn or other dry store. Such methods are satisfactory for short periods only as wastage becomes progressively heavier and cooking quality deteriorates as the time of storage increases.

While the price of Potatoes remains comparatively low, any method of storage involving appreciable cash outlay is not warranted, but now that Potatoes are high priced and are in limited supply, it becomes necessary to avoid wastage and deterioration during the storage period. For this reason large quantities of Potatoes have been held in cool stores in Victoria during the last two years, mainly for dehydration and other manufacturing processes which demand a first-class article.

As little information was available locally, the Victorian Department of Agriculture conducted a series of tests last year to determine:—

- (1) The precise advantages to be gained from cool storage as against dry storage;
- (2) The optimum storage temperature, and
- (3) The period for which tubers should be held in cool store.

For the purpose of this trial a ton of Late Carman Potatoes grown at Ballarat was put aside after being dug during the last week of May. One-third was stored in bags in a shed in the normal way, while the remainder was forwarded in monthly instalments to the Government Cool Stores, Melbourne, where equal quantities were placed in chambers held at 32 deg. F. and 42 deg. F. respectively.

It was observed that the farm stored Potatoes remained dormant until September, when the sprouts first began to make their appearance. From mid-September on, however, with atmospheric temperatures rising day by day, sprouting became more pronounced, until by the end of the year the farm stored tubers had developed sprouts over six inches long. With the increasing development of sprouts, the quality and appearance of the farm-stored Potatoes progressively declined until by December they were very wrinkled and shrunken.

On the other hand, the tubers held in cool storage until December were in a condition scarcely different from that when dug. The Potatoes held at 32 deg. F. remained absolutely dormant and were of perfect appearance, but on cooking them an unnatural sweet taste was

evident and they were of a soggy nature. This condition is due to the conversion of the starch content to sugars, brought about by storing at too low a temperature. The material stored at 42 deg. F. was normal in every way when cooked. While this temperature was sufficiently low to maintain the Potatoes in an almost dormant condition, no sprouts being more than $\frac{1}{2}$ in. long, it was not so low as to bring about the undesirable starch conversion.

In the above trial the Potatoes were weighed before and after storage. Those held in cool store until December lost a maximum of only 4 per cent. of their original weight, whereas the farm stored tubers lost no less than 20 per cent. in weight over the same period; half of this loss being represented by the sprouts.

It is obvious that cool storage with its attendant costs is not warranted before September, but is a necessary procedure after that date where it is desired to hold Potatoes in good order into the early summer months.

Scattered throughout the fruitgrowing districts of Victoria are numerous cool stores used almost exclusively for the storage of fruit. These stores mostly begin to empty by mid-September and from that time onwards there is much idle cool storage space. It is suggested that the storage of Potatoes for use late in the season may be a means of filling this idle space and would be of mutual advantage to the orchardist and the Potato grower.

Work of the Council for Scientific and Industrial Research in Australia

A considerable part of the Council's activities is now devoted to the solution of problems arising from the war, but, for security reasons, very little specific information concerning this part can be disclosed.

The Chairman is Sir George A. Julius; Chief Executive Officer and Deputy Chairman, Sir David Rivett, and Deputy Chief Executive Officer, Dr. A. E. V. Richardson.

Included amongst the Council's activities are problems associated with plant life, entomology, animal health and nutrition, soil, irrigation, forest products, food preservation, fisheries, national standards, aeronautics, industrial chemistry, lubricants and bearings, etc.

In general, the functions and powers of the C.S.I.R. include the initiation and carrying out of research in connection with primary and secondary industries; the training of research workers; the making of grants in aid of pure research; carrying out experiments connected with the standardization of scientific apparatus and instruments, and the establishment of a bureau of information relating to scientific and technical matters.

Extensive work has been done in the various research stations throughout the Commonwealth and our war effort is already reaping the benefits of this valuable work.

Fruit Investigations.

The 17th annual report of the C.S.I.R. shows that fruit investigations have been extensive.

Apples and Pears.

In Tasmania investigations centred at Huonville have reduced storage disorders of Apples and Pears.

Control of internal cork in Apples by soil dressings of $\frac{1}{2}$ lb. borax per tree has continued for the seventh year, and

this disorder has practically been eliminated in Tasmania. "Cork" of Pears is still claiming attention, but as yet has not responded to the various treatments. "Dimple" of Granny Smith and Cleopatra Apples has not responded to treatment so far and the past season has failed to give any further positive results as regards the cause of "die back."

During the 1942 season, 50,000 cases of Apples were treated by a hand dipping machine under the supervision of the officers of the Council for the Apple and Pear Acquisition Committee. Only 15 per cent. of the fruit was lost.

At Huonville information was obtained on the relative value of different types of coating emulsions on semi-commercial scale lots of fruit. The success of the coating method is limited to certain varieties.

Technical advice and assistance to manufacturers regarding methods of processing have also substantially increased the vitamin "C" content of local fruit and vegetable products.

At Stanthorpe, Queensland, the investigations of the problems of Apple and Pear rootstocks have been reduced to a minimum and several minor items have received attention as opportunity allowed. From observations it appears that the only commercial variety grown in the Stanthorpe district which develops a strong even root system when grown on its own roots, is Delicious.

Citrus.

Investigations have been continued at the Irrigation Research Station, Griffith, to find a series of rootstocks suited to the soil conditions prevailing in the Murrumbidgee and Lower Murray irrigation areas. Further collections of root cuttings from old trees of outstanding vigour and performance in the above areas were made.

Trials of the susceptibility of different rootstocks to a disease caused by the fungus "Phytophthora citrophthora" were made. "Poncirus trifoliata" alone proved practically resistant.

The method of assessing the changes in growth, health and vigour of experiment trees by periodic surveys has been continued, and a weekly record of root growth has been taken in the root observation trench.

Vegetable Investigations.

Potatoes.

Experiments aimed at developing varieties resistant to viruses have been continued. The most promising results have been achieved in obtaining crossbred seedlings with resistance to virus Y. The technique of raising seedlings has been worked out and methods of testing for virus resistance are being established.

In addition to the two varieties, up-to-date and Bismarck, of which virus-free stock have been obtained, there is now a third variety, Victorian Snowflake, of which a few virus free tubers are now available for multiplication.

Vegetable seed investigations have been continued with favourable results.

Improved Australian Standards

Valuable Work Accomplished by the Commonwealth Council for Scientific and Industrial Research.

EXCELLENT RESEARCH WORK to assist in overcoming problems confronting Australian primary and secondary industries is being performed by the C.S.I.R. Many details are given in their last annual report.

Irrigation Settlement Investigations.

The work on this problem is carried out at two Commonwealth Research Stations at Merbein, Victoria, and Griffith, N.S.W.

At the Merbein station the work is carried out under the following headings:—Soil reclamation, viticulture, vegetable production, drug plants, fruit processing. As well, attention is also given to small general problems which may arise from time to time.

Again Griffith has concentrated on problems of immediate importance in the war economy, and the work of the station has been expanded considerably owing to pressing problems in maintaining production of fruit and increasing production of vegetables.

The orchard survey covers such matters as cover crops, soil types, health and growth of trees, fertilizers, soil moisture and drainage.

Much attention has been given to vegetable growing and the main problems to contend with here are: (1) irrigation, (2) seed germination, (3) weed control.

In connection with these problems, detailed experiments have been carried out both at the station and on adjacent properties.

Experiments in both drainage and irrigation are being carried out in order to help overcome the natural disadvantages in certain areas, especially for the growing of citrus fruits.

Food Preservation.

Under wartime conditions, preservation of foodstuffs has assumed great importance, and canning and dehydration are the most important fields of investigation.

Small scale investigations have been carried out to dehydrate most vegetable varieties, and attention is being paid to the storage life and vitamin content of the vegetables.

Again much work has been done on the storage of fresh fruit and vegetables.

Fruit juices are becoming more important, and a large amount of time is devoted to experiments in this connection.

The preparation of "solid jam" was investigated in order to help conserve tinplate success was achieved with both Raspberry and Plum jams.

The Original Business — Estab. 1915.

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List of Australian and New Zealand Cool Stores

Victoria.

Capacity in
Bushel Cases

Shepparton Cannery	200,000
Govt. Cool Stores, Victoria Dock	190,000
Orchardists' Co-op., Doncaster E.	143,000
Australasian Jam Co.	120,000
Metro-Ice and Fresh Food Co., Melb.	100,000
Harcourt	80,000
Kyabram Preserving Co.	63,000
Mrs. M. Dalley, Shepparton	60,000
Blackburn	55,700
Amalgamated Freezing Co., Bendigo	55,000
Amalgamated Freezing Co., Donald	55,000
Ardmona Cannery	53,000
Ringwood	51,500
Northcote Ice and Cold Storage Co.	50,000
Burwood E.	42,000
Wantirna	41,000
Dilworth's, Ivanhoe	40,000
Woodmason, W. (3 stores)	40,000
Doncaster W.	40,000
Hastings	39,000
Tyabb	38,200
Red Hill	38,200
Valley View, Pakenham	35,000
Doncaster E.	31,500
Lawford's Fruit Ex.	31,070
Mt. Waverley	30,600
Sennitt's, Melb.	30,000
Box Hill Cold Storage Co.	30,000
Brighton Ice Works	25,000
(increasing to 50,000)	
Somerville	23,500
Holland, J. E., Red Hill	23,000
Floyd's, Moonee Ponds	22,500
S.Vic. Pear Packing Co., Blackburn	21,110
Croydon	21,050
Lawford, V., Blackburn	21,000
Angliss & Co., Melb.	20,000
French, Deepdene	20,000
Templestowe Cool Stores Pty. Ltd.	20,000
Pyke, F. C., Ringwood	20,000
Diamond Creek	18,700
Brunning, J., & Sons, Somerville	17,500
Graceburn Valley, Healesville	17,000
Narre Warren Co-op. Stores	16,560
Devon Orchards, Red Hill	15,000
Brunswick Ice Works	15,000
Gorae Stores, Portland	15,000
Vic. Butter Factory, Melb.	15,000
Pakenham Cool Stores Pty. Ltd.	14,200
Unthank, H. H., Hastings	14,200
Peninsula Cool Stores, Moorooduc	13,700
Petty, F., Mitcham	14,000
Ireland, A. E., Doncaster	14,000
Tully, L. J., Doncaster	14,000
Ireland, W., Mitcham	13,500
Toomuc Valley, Pakenham	13,000
Burriss Ice Works, Glenferrie	12,000
Symes, H., Harcourt	11,600
Carpenter Bros., Hastings	11,500
Richmond Ice Works	11,000

Dobson Bros., Fern Tree Gully	10,080
Antarctic Ice, Warrnambool	10,000
Crystal Ice Co., Bendigo	10,000
Heatherlea, Croydon	10,000
Stott, A. P., Wheeler's Hill	10,000
Lowe, W., Officer	10,000
Petty, Mrs. A., Doncaster	10,000
Hyland & Sons, Melb.	10,000
Robinson, H. W., Donvale	9,500
Aust. Ice Works, Ballarat	8,000
Cameron, F. W., Doncaster	8,000
Polar Ice Products, Geelong	7,500
Spurr, W., Bacchus Marsh	7,000
Tynong (W. C. Thomas & Co.)	7,000
Thiele, A. C. H., Doncaster	7,000
Silk Bros., Melbourne	7,000
Lechte Bros., Mt. Waverley	6,150
Bunyip Orchardists	6,118
Jenkins, A. S., Scoresby	6,000
Apted, L., Arthur's Creek	6,000
Motschall Bros., Pantom Hill	6,000
Robinson, J., Scoresby	6,000
Bairnsdale (Lekeland Butter Co.)	6,000
Gedye, R. T., Doncaster	6,000
Corbett, H. P., Doncaster	5,500
Heinz Bros., Ballarat	5,500
Haysey, R. E., Narre Warren	5,300
Burke, P., Hurstbridge	5,000
Preston and District Ice Works	5,000
Jenkins, W. R., Templestowe	5,000
Onleys, Brunswick	4,500
Jenkins, H. D., Scoresby	4,000
Parker, A., Donvale	4,000
Chelsea Ice Works	4,000
Bound & Sons, Nhill	4,000
Burgi, M. L., Wandin	4,000
Dawson, W., Kangaroo Ground	3,600
Priest, G. H., Pakenham E.	3,300
Mordialloc Ice Works	3,000
Shanhan, D., Pantom Hill	2,500
Wilson, Chas., Scoresby	2,500
Ramage, A., Pakenham	2,400
Shaw, A. B., Cottlesbridge	2,150
Potter Bros., Bendigo	2,100
Smith, W. T., Pantom Hill	2,016
Smith, V. A., Pantom Hill	2,016
Robinson, A., Mitcham	2,000
Williams, J. T., Doncaster	1,800
Stone, F. E. H., Pantom Hill	1,800
Jones, H. L., Hurstbridge	1,100
Stawell Butter Co., Stawell	1,000
Colac Ice Works	1,000
Muir, M., Red Cliffs	450

QUEENSLAND.

Brisbane.

Birt and Co.	20,000
Hamilton Cold Stores	100,000
Trails Ltd.	16,600

Stanthorpe.

H. Archibald	4,000
H. R. McGuigan	5,500
J. W. Barlow	5,000

WESTERN AUSTRALIA.

(Case capacity not available.)

Hollywood Brewery	Perth
Brownes Ltd.	Perth
Richmond Brewery	Fremantle
Boulder Ice Co.	Kalgoorlie
V. P. Webb	Argyle
Macfarlane & Co. Ltd.	Perth
Westralian Farmers Ltd.	Fremantle and Bridgetown
Illawarra Orchard Co.	Karragullen
Mt. Barker Cold Storage Co.	50,000 cases
Western Ice Co.	Perth and Fremantle
Tropical Traders Ltd.	Perth
Perth Ice Works	Perth
Bantocks Ltd.	Subiaco
W.A. Meat Export Co.	Robbs Jetty
Peters' American Delicacy Co.	Perth
Fremantle Cold Storage Co.	Fremantle
Collie Ice Works	Collie
Albany Freezing Works	Albany
Anchorage Butchers Ltd.	Fremantle
Cartwrights Dairy Produce Co.	Perth

FRUIT COOL STORES—NEW SOUTH WALES.

Name of Cool Store.	Bushel Cases.
Albury District Rural Co-op. Society, Nth Albury	5,000
Barrett, W. E., Orange	125,000
Batlow Packing House Co-op. Ltd., Batlow	76,000
Batlow Growers' Co-op. Trading Soc. Ltd., Batlow	12,000
Country Freezing Co. Pty. Ltd., Blayney*	15,000
Dark's Ice and Cold Storage Ltd., Newcastle*	80,000
Della Valle, F., Batlow	5,500
David Hyland and Sons Pty. Ltd., Sydney	5,000
Harris Bros., Little Hartley	2,000
Jackes, R. A., and Coy., Armidale	9,000

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AGENT FOR—

- "BAY VIEW" FRUIT PICKING BAGS.
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T. Lawrence and Son, Wagga	(a)
Leeton Co-op. Cannery, Leeton	55,000
Market Cool Stores (L. A. Bownas), Sydney	20,000
Municipal Cold Storage Works, Sydney*	170,000
Metropolitan Ice & Cold Storage Works, Sydney*	(a)
N.S.W. Fresh Food and Ice Co. Ltd., Sydney	(a)
Producers' Co-op. Distributing Society Ltd., Kentucky South	15,000
Sydney Cold Stores Ltd., Sydney*	80,000
Sim Bros., Capertee	2,400
Wallace and Ryan Pty. Ltd., South Wagga	4,000
Young Cool Stores Rural Co-op. Society, Young	22,000
Orange Fruit Growers' Co-op. Cool Stores Ltd., Orange	62,000
Edmondson, T., and Coy., Wagga	2,400
Griffith Producers' Co-op. Co. Ltd., Griffith	25,000

*Storage not confined entirely to fruit and capacity for fruit would vary according to quantity of other commodities offering.

(a) Particulars not available.

SOUTH AUSTRALIA.

Cool Storage Accommodation for Apples and Pears.

	Bushel Cases.
Producers' Cold Storage Ltd., Adelaide	56,000
S.A. Cold Stores Ltd., Mile End	25,000
Metropolitan and Export Abattoirs Board, Gepp's Cross	53,000
Cudlee Creek Co-op. Society Ltd., Cudlee Creek	31,902
Lenswood Cold Stores Ltd., Lenswood	27,000
Balhannah Cold Stores Ltd., Balhannah	22,500
Gumeracha Fruit Growers' Co-op. Assn., Gumer- acha	15,600
Sturt Producers' Scty. Ltd., Blackwood	28,700
Heysen, O., & Son, Adelaide	12,000
Redden, W. J., & Son, Verdun	7,000
Redden, W. J., & Son, Cudlee Creek	6,700
Norsworthy & Co., S. E., Gumeracha	5,000
Norsworthy, P. G., Williamstown	3,200
Kelsey, R., Balhannah	1,856
Laura Ice & Produce Co. Ltd., Laura	1,000
Clare Ice & Cold Stores Ltd., Clare	3,000
Government Produce Department, Adelaide	15,000
Paracombe Fruitgrowers' Co-op. Society Ltd., Paracombe	22,400
Vickers, M. J., Lenswood	7,000

343,858

TASMANIA.

	Cubic Feet.
*H. Jones & Co., Hobart	225,000
Moonah Cool Stores	60,000
Bender & Co., Launceston	60,000
Pt. Huon Fruit Growers' Cool Store (Co-op.), Pt. Huon	230,000
Huon Deep Water Cool Store, Port Huon	82,500
Huonville Cool Stores	175,000
Cygnat Cool Stores	100,000
Rostrevor Est. Cool Stores, Triabunna	25,000
Beauty Point Cool Stores, Beauty Point	80,000
E. A. Walpole, Spreyton	60,000
W. H. & D. F. Calvert, Judbury	30,000
Calvert Bros., Waterloo	16,000
A. Clark, Koonya	4,000

1,147,500



Production - Marketing - Export

Facts and Figures for Year 1943-44

WITH the recent shortage of canned fruits for civilian markets, consumers have realised more forcibly than ever, the importance of the canned fruits industry.

The eighteenth annual report of the Australian Canned Fruits Board for the year ending June 30, 1944, again deals with problems which our wartime economy places on the industry.

There has been no change in the Board's personnel since the submission of its last report, the members being:

Sir Charles Merrett, C.B.E., V.D., chairman and representative of the Commonwealth Government.

Mr. A. W. Fairley, representative of co-op. canneries.

Mr. T. L. Stafford, representative of proprietary and privately owned canneries.

Mr. G. J. Evatt, representative of State-controlled canneries.

Mr. B. Flewell-Smith, representative of producers of canned pineapples.

Secretaries: Mr. W. J. Adams (Melbourne), Mr. W. B. Cooper (London).

Owing to wartime conditions the Board has been temporarily relieved of some of its peacetime activities.

The revenue of £1,694/15/7 for the year under review shows an increase of £578/12/2 on that of the previous year, but falls substantially short of pre-war receipts.

Expenditure is shown as £3,282/7/10, which is £697/5/5 less than that of the preceding year. This is due to further economies being introduced during the year 1943-44.

Excess of expenditure over revenue was £1,587/12/3.

Since the outbreak of war there has been a heavy drain on the Board's funds arising from the diversion of the peace time exportable surplus stock into other channels. A credit balance of £14,620/13/- held at July 1, 1938, has been reduced at June 30, 1944, to £5,475/13/11. This drift, although due to circumstances beyond the Board's control is serious as it is anticipated that greater expenditure on advertising and publicity may be necessary to satisfactorily re-establish our canned fruits on overseas markets in the immediate postwar years.

PRODUCTION.

Apricots, Peaches and Pears.

Canners again commenced the season (1944) with no unsold stocks on hand. Maximum production was sought this year, and 3,000,000 cases was the quantity aimed at. Despite favourable conditions, this figure proved too high and the output for the season only reached 2,307,914 cases.

The pack comprised 327,946 cases of canned Apricots, 1,377,768 cases of canned Peaches (including 33,520 cases of mixed Peaches and Pears) and 602,200 cases of canned Pears.

The Apricot and Peach packs were in excess of 1943, but the Pears fell short of that year owing to the fact that only one variety—the Williams Bon Chretien—was used.

The policy of using Buerre Bosc and Packham varieties which had to be diverted from the fresh fruit markets did not prove entirely satisfactory in 1943, and was not reintroduced this season.

The aggregate pack showed an increase of 225,360 cases on 1943 season's production, but still remains well below pre-war level. This is due to many factors, the more prominent being the problem of finding adequate and experienced labour and the fact that some diversion of fruit into jam manufacture has taken place.

The quality of this season's pack is well up to standard. The following minimum prices were prescribed by the Fruit Industry Sugar Concession Committee for 1944 season's fruits of canning quality.

Compared with 1943 season's prices, they reflect a uniform increase of £1/5/- per ton, and in comparison with the average pre-war prices (1938 and 1939 seasons) they show the following approximate percentage increases:

Pure and Wholesome

A-J-C

JAMS -:- PRESERVES
-:- SAUCES -:-

Cannot be Excelled

Only One Quality

-:- THE BEST -:-

Australasian Jam Co. Pty. Ltd.

1 Garden Street, South Yarra, Vic.

Per long ton.
Growers' loading station
or delivered to local
cannery. . . %

Apricots	£16/10/-	37½
Clingstone Peaches (clear centres)	£15/10/-	57
Clingstone Peaches (others) . . .	£14/10/-	51
Pears—Williams Bon Chretien ..	£14/10/-	45

Pineapples.

Notwithstanding losses through frost damage, the 1943 season's winter pack of canned Pineapples was the highest recorded to date. It reached 177,784 standard cases. The aggregate summer and winter packs for 1943 was 373,435 cases—almost equal to the 1940 record breaking figure of 392,659 cases. Approx. 24 per cent. of the combined packs was released for civilians and the balance went to the Services.

The severe 1943 frosts, however, considerably reduced the 1944 yields. The 1944 summer pack only reached 52,800 cases, which is the smallest bi-annual pack for at least a decade.

The minimum prices nominated by the Fruit Industry Sugar Concession Committee for Pineapples ex the 1944 summer crop purchased from growers by factories was £12 a long ton, "tops off," f.o.r. growers' sending station, and 5/10½ a case "tops on" plus freight and/or cartage for supplies purchased at fresh fruit markets. These rates constitute an increase of £1/8/4 a ton, and 9d. a case, respectively, on the minimum prices applied to 1943 season's purchases; they also represent an increase of 54 per cent. on the average of factory prices nominated by the Committee for the prewar seasons of 1933 and 1939.

Disposal of Stocks.

It was again considered necessary by Commonwealth authorities to exercise control over the distribution of canned fruit stocks.

Service and ancillary service demands have absorbed the major portion of this season's pack and a considerable quantity has been provided for Allied troops.

Export quotas have been arranged for the British and N.Z. Governments. The British Government's quota consisted of 100,000 cases, and the N.Z. allotment 60,000 cases. In addition it was directed that 15,000 cases be set aside for supply to Pacific Islands adjacent to Australia.

The aggregate of this season's civilian releases—approx. 692,000 cases—represents a welcome advance on the quota of 311,000 cases made available for civilians in 1943. Of the small 1944 summer pack of Pineapples the domestic market received an allotment of 10,000 cases out of 52,800 and the balance was taken up by service demands.

Once again there should be no unsold stocks in canner's hands at the commencement of the 1945 processing season.

Post-war Problems and Prospects.

Prior to the outbreak of war the exportable surplus of Australian canned fruits represented about 60 per cent. of production. Many factors had helped to bring stability and progress to the fruit canning industry which provided a worthy contribution to the national economy. No subsidy on exports of canned fruits has been sought from the Commonwealth Government for a period of fifteen years.

With the commencement of hostilities, commercial trading in canned fruits with other countries was disrupted and later it virtually ceased.



The "unseen ingredient" in your cans that safeguards your product, protects its purity and flavour. Likewise, Dewey and Almy's research - plus - experience — the "unseen ingredient" that builds into Darex Sealing Compounds the properties to keep pace with today's strenuous high-speed packing, new processes, and hard-to-seal packs.

**DEWEY AND ALMY
PTY. LTD.**

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U.S.A. - ENGLAND - CANADA

Recently the Board prepared a statement on the pre-war position of the Australian fruit canning industry, and its post-war prospects.

The difficulty of assessing post-war prospects in the absence of definite information regarding existing tariff barriers was stressed. The industry was so largely dependent on tariff protection in its principal markets that unless this protection remained serious repercussions and radical adjustments would be necessary.

Having regard to this uncertainty, it was the Board's opinion that indiscriminate and unrestricted planting of new acreages of canning fruits was inadvisable at this juncture; the appropriate time to embark on extensions

appeared to be when assured outlets at payable prices were available for the processed product.

Statistics.

Since 1940 statistics relating to exports of canned fruits have been excluded from reports by direction and for security reasons. Recently, some relaxation of these restrictions has been made and the Board is able to publish particulars of exports during the calendar years 1940-1943.

Details of production of canned Apricots (Table A); Peaches, Pears and Pineapples during the processing seasons of 1926, 1930, 1934 and 1938-44, are also shown (Table B).

Table A.
Export of Canned Apricots, Peaches, Pears and Pineapples During the Seasons 1926, 1934 and 1937-43 (inclusive).

Destination.	(In cases each containing 2 doz. 30 oz. tins or equivalent.)								
	1926.	1934.	1937.	1938.	1939.	1940.	1941.	1942.	1943.
United Kingdom	190,423	1,271,448	1,450,583	1,547,732	1,648,207	796,499	—	—	—
New Zealand	81,260	50,841	120,921	124,239	80,914	57,745	55,567	42,870	56,000
Canada	8,294	90,540	90,471	74,378	86,908	106,952	160,619	254	—
East	12,153	18,336	23,074	15,874	30,510	206,106	1,104,793	162,607	—
Miscellaneous	3,533	3,289	7,130	5,938	6,397	6,245	11,620	11,304	—
Total	295,663	1,434,364	1,692,179	1,768,161	1,852,936	1,173,547	1,332,599	217,035	56,000

Table B.
Production of Canned Apricots, Peaches, Pears and Pineapples during the Seasons 1926, 1930, 1934 and 1938-44 (inclusive).

(Figures in cases, each containing 2 doz. 30 oz. tins or eq.)

	Canned Apricots.									
	1926.	1930.	1934.	1938.	1939.	1940.	1941.	1942.	1943.	1944.
N.S.W.	44,326	47,242	48,042	94,999	86,356	105,505	83,276	53,254	62,063	83,936
Victoria	49,403	165,718	139,968	219,016	129,094	227,923	152,959	98,888	121,293	181,997
South Australia	3,914	5,586	4,824	41,632	32,057	54,333	30,303	13,993	30,319	51,682
West. Aust.	—	—	—	—	—	—	—	77	385	—
Tasmania	38,032	58,728	36,482	24,435	34,915	9,375	21,611	15,681	1,550	10,331
Total	135,675	227,274	229,316	380,082	282,422	397,136	288,149	181,893	215,610	327,946

	Canned Peaches.									
N.S.W.	134,555	320,562	294,231	441,086	484,315	336,184	461,414	409,694	304,825	320,708
Victoria	614,844	775,456	496,749	1,327,417	1,346,999	956,778	1,169,666	930,936	*843,146	†1,038,415
South Australia	9,600	17,748	8,176	22,239	21,482	19,330	28,324	7,443	10,370	18,645
Total	758,999	1,113,766	799,156	1,790,742	1,852,796	1,312,292	1,659,404	1,348,073	1,158,341	1,377,768

	Canned Pears.									
N.S.W.	4,607	20,701	15,992	36,070	16,286	44,537	50,119	30,854	10,325	17,528
Victoria	161,685	301,150	323,298	671,180	443,700	696,778	644,637	484,350	589,550	500,568
South Australia	20,706	19,737	16,083	97,520	48,193	92,515	44,004	47,775	65,674	47,320
Tasmania	42,002	52,307	43,672	55,334	64,798	44,017	46,388	32,097	42,554	36,784
Total	229,000	393,895	399,045	860,104	572,977	877,847	785,148	595,076	708,603	602,200

			Canned Pineapples.							
Queensland . . .	132,425	167,065	192,160	358,594	388,311	392,659	360,989	224,691	373,435	\$52,801
Totals—All Packs.										
Canned Apricots .	135,675	277,272	229,316	380,082	282,422	397,136	288,149	181,893	215,610	327,946
Canned Peaches .	758,999	1,113,766	799,156	1,790,742	1,852,796	1,312,292	1,659,404	1,348,073	1,158,341	1,377,768
Canned Pears . .	229,000	393,895	399,045	860,104	572,977	877,847	785,148	595,076	708,603	602,200
Canned Pineapples	132,425	167,065	192,160	358,594	388,311	392,659	360,989	224,691	373,435	52,801
Total	1,256,099	1,951,998	1,619,677	3,889,522	3,096,506	2,979,934	3,093,690	2,349,733	2,455,989	2,360,715

*Includes 18,512 cases, composite pack. †Includes 33,520 cases composite pack. ‡1944 Summer pack only

Fruit Industry Sugar Concession Committee

THE Thirteenth Annual Report of the Fruit Industry Sugar Concession Committee for the year ended August 31, 1944, has been issued in conformity with the Sugar Agreement Act of 1940.

The members of the Committee were as follows:—
Messrs. H. F. B. Heyes (Chairman), W. J. J. Short (Queensland Sugar Board), W. Young (Canning Fruit Growers), P. A. Feil (Noncanning Fruit Growers), A. W. Fairley (Co-op. and State Cannery), A. W. Palfreyman (Proprietary Cannery).

Mr. Heyes, who has previously acted as chairman, was appointed to that position on the death of Mr. A. R. Townsend. It was with deep regret that the Committee recorded the death of Mr. Townsend, who passed away on April 24, 1944.

It was shown in the report that expenditure from the Committee's funds was again lower than the Statutory Contribution by the Queensland Government. This resulted in a further accumulation of funds beyond the Committee's immediate cash requirements. Further investments of £80,000 have been made in Commonwealth Bonds during the year and the interest of all bonds held totalled £7,021/19/9.

Disbursements under the heading of "domestic sugar rebates" were made to the various States as follows, and totalled £133,638/14/11.

Expenditure on export sugar rebate amounted to only £71/1/1. Administrative expenses were again kept to a minimum and the total expenses amounted to only £882/15/8.

State.	Amount.	Percentage.
N.S.W.	£41,738 7 10	31.23
Victoria	£56,435 18 5	42.24
Queensland	£8,946 17 9	6.69
South Australia	£7,433 5 9	5.56
Western Australia	£1,309 9 4	.98
Tasmania	£17,774 15 10	13.30
Commonwealth	£133,638 14 11	100.00

Fresh Fruit Prices—1944 Season.

The following minimum prices for fresh fruits of 1944 season's crop were declared by the Committee to be reasonable prices. Some kinds of fruit are wholly or partly harvested during the last few weeks of the calendar year, but are designated in this Report as being of the 1944 season.

A comparison of 1944 prices with the average prices from 1932-1943 is shown.

Kind of Fruit.	1944 Minimum Prices.		1932-43 Average Minimum Prices.	
	Canning.	Non-Canning.	Canning.	Non-Canning.
	Per lb.	Per lb.	Per lb.	Per lb.
Black Currants	4½	4½	3.42	3.197
Gooseberries	2½	2½	1.63	1.385
Kentish Cherries	3½	3½	*	2.6
Loganberries	3½	3½	2.66	2.16
Raspberries	5½	4	3.32	2.82
Red Currants	3½	3½	3	3
Strawberries	7½	6½	4.62	4.25

*Canning price not previously determined.

	Per ton.	Per ton.	Per ton.	Per ton.
Apricots	£16/10/-	£14/10/-	£12.1	£9.85
Peaches—				
Clingstone,				
Clear Centres	£15/10/-	£11/10/-	£11.37	£7.60
Others	£14/10/-	£11/10/-	£10.62	£7.60
Freestone	£12/10/-	£11/10/-	£8.47	£7.66
Pears—				
Bartlett	£14/10/-	£14/10/-	£10.44	£10.44
Keiffer	*	*	£8.52	£8.52
Plums	£10/-/-	£10/-/-	£7.12	£7.12
Quinces	£10/-/-	£9/-/-	£8.375	£6.796
Pineapples — Not less than 4in. diameter and 5in. in length, "tops off"	£12/10/-	£12/10/-	£8.66	£8.66
Market Prices, "tops on," per case	5/10½	5/10½	3/11	3/11

*No minimum price fixed by Committee for Keiffer Pears, 1944 season.

†Canning prices first fixed 1940 season.

Note.

Berry fruit prices are for delivery at factory. Pineapple prices are at growers' railway station, but manufacturers must pay freight and cartage on fruit purchased at markets. For all other fruits, canning prices are at growers' railway station or country cannery, and non-canning prices are at metropolitan factory except that, for non-canning fruit delivered at country factories, the prices are £1 a ton less than those stated above.

It is important to note that the foregoing prices for 1944 and the averages for 1932-1943 are merely minimum prices. Each year—due to short crops in certain districts or States, the operation of a growers' organisation and/or the good profits of certain canners—some kinds of fruit are the subject of higher initial purchase prices or a bonus payment at the end of the year.

Apricots, Peaches and Pears.

Again there was no carry over of stocks from the previous year and prices represent another uniform increase to growers of £1/5/- per ton.

Although the pack of 2,307,914 cases constitutes an advance of 225,360 cases on 1943 season's production, it fell short of the maximum production sought by the Commonwealth Government.

Apricot and Peach packs were a welcome improvement on 1943, and the Pear pack was good, having regard to the fact that fruit handled was confined to William Bon Chretien.

Service requirements are again heavy this season, only 30 per cent. of the pack (approx. 700,000 cases) will be the total release for the Australian domestic market.

Pineapples.

An increase of £1/8/4 per ton, "tops off," for direct factory purchases, and 9d. per case, "tops on" for supplies purchased by processors on the fresh fruit market was considered justified this year.

Frost damage to plantations in 1943 was one of the main causes of the 1944 Summer pack of 52,801 cases, being the smallest recorded since the inception of this Committee in 1932.

Berry Fruits.

During 1944 processing season, the aggregate of factory deliveries of fruit in Tasmania represented a satisfactory tonnage. The Raspberry crop was larger than usual, but the Strawberry crop was slightly sub-normal.

Efforts were made to increase the pack of canned berry fruits in Tasmania to meet increased defence requirements. Proposals were made for provision of increased price margins between canning and non-canning quality fruits, but despite the fact that the Committee adopted these recommendations the resultant pack did not measure up to expectations.

In Victoria, where berry fruit production is relatively small, most of the fruit found a ready disposal on fresh fruit markets.

Jams and Fruit Pulps.

Jam production is understood to have shown an advance of about 100 per cent. on pre-war output. Export of jams has been virtually suspended during the last two years, with the result that all civilian and service requirements have been met and a surplus stock left for

disposal. This has caused a substantial tonnage of fruit to be diverted to the production of fruit juices and pulps.

LIQUID MEASURE.

60 minims	= 1 drachm
8 drachms	= 1 ounce
20 ounces	= 1 pint
2 pints	= 1 quart
4 quarts	= 1 gallon
1 minim	= 1 drop
1 drachm	= 1 teaspoonful
2 drachms	= 1 dessertspoonful
4 drachms	= 1 tablespoonful
2 ounces	= 1 wineglassful
4 gills = 1 pint = 34.66 cub. in.	
2 pints = 1 qt. = 69.318 cub. in.	
4 qrts = 1 gall. = 277.274 cub. in.	
1 pint of water weighs 20 oz.	
1 gallon of water weighs 10 lb.	

CANNED FRUIT AND JAM MANUFACTURERS IN AUSTRALIA.

New South Wales:

J. Ambrose Ltd., Princes Highway, Kogarah.
Cottees Passiona Ltd., Marion-street, Leichhardt.
L. Cowing, 554 Parramatta-road, Petersham.
Fowlers Vacola Manufacturing Co. Ltd., Rosebery.
Good Food Products, 40 York-street, Sydney.
Holbrooks (A/asia) Pty. Ltd., Danks-street, Waterloo.
Hygienic Jam Co. Pty. Ltd., 23 Ivy-street, Darlington.
Illawarra Jam Co., 7a Norton-street, Leichhardt.
W. H. Johnson & Co. Ltd., Bruce-street, Waterloo.
H. Jones & Co. (Sydney) Pty. Ltd., Darlington, Sydney.
Lackersteen & Co. Pty. Ltd., 2 Parramatta-road, Camperdown.
Meadowsweet Jam Co., 11 May-street, Eastwood.
P. Methven & Sons, Mt. Druiitt.
Leeton Co-operative Cannery Ltd., Leeton.
N.S.W. Jam Coy., Hay-street, Leichhardt, Sydney.
Pick-Me-Up Condiment Co. Ltd., Alice-street, Newtown.
Rosella Preserving and Manfg. Co. Ltd., Morley-avenue, Rosebery.
Sherwood's Jams & Preserves, 6a Isabella-street, Balmain.

Victoria:

Ardmona Fruit Products Co-op. Co. Ltd., Mooroopna.
Australasian Jam Co. Pty. Ltd., 1 Garden-street, South Yarra.
Bendigo Preserving Co. Ltd., Garsed-street, Bendigo.
Brookes Lemos Ltd., 69-79 Whiteman-street, South Melbourne.
D. Camm & Sons Pty. Ltd., Monbulk.
Clegg & Kemp Pty. Ltd., 115 Stanley-street, West Melbourne.
C. Ellen, Birkenhead-street, North Fitzroy.
Fowler's Vacola Pty. Ltd., 253-259 Burwood-road, Hawthorn.
W. H. Johnson Jams Pty. Ltd., 42 Meaden-street, South Melbourne.
Kyabram Co-op. Fruit Preserving Co., Kyabram.
H. M. Leggo & Co. Ltd., Victoria-crescent, Abbotsford.
Francis Longmore & Co. Ltd., 617 Spencer-street, Melbourne.

R. Lohn & Co. Pty. Ltd., 36 Albermarle-street, Kensington.
Melbourne Jam Co. Pty. Ltd., 242 Rae-street, North Fitzroy.
Mildura Co-operative Fruit Co. Ltd., Box 104, Mildura.
Model Preserving Coy., c/r Campbell and Perry streets, Collingwood, N.5.
Rosella Preserving & Manfg. Co. Ltd., Cremorne Gardens, Richmond.
Shepparton Fruit Preserving Co. Ltd., Shepparton.
Henry Williams & Sons Pty. Ltd., Heidelberg-road, Alphington.

Queensland.

F. G. Butt & Sons, Murphy-road, Zillmere.
John Fischle & Sons Pty. Ltd., Bald Hill, Queensland.
R. M. Gow & Co. Pty. Ltd., Turbot-street, Brisbane.
J. Hargreaves & Sons Pty. Ltd., Manly, Queensland.
Queensland Canneries Pty. Ltd., Brisbane.
Summerland Preserving Co., May-street, Milton.
Sumner's Preserving Co., Flower-street, Nundah.
Tassell Products, Montague-road, Hill End, South Brisbane.
Victoria Cross Manfg. Co. Pty. Ltd., Woollongabba.

South Australia:

J. Brooker & Sons, Port-road, Croydon.
Glen Ellen Cannery, Hahndorf.
H. Jones & Co. (Adelaide) Pty. Ltd., Keswick.
Geo. McEwin & Son Ltd., 27 Grenfell-street, Adelaide.
Robson, Jarvis & Co., Hectorville, Montacute-road.
Rosella Preserving & Manfg. Co. Ltd., Kent Town.
Munzone Products Ltd., Payneham-road, St. Peters.

Western Australia:

Crystal Jam Co. Ltd., Railway-parade, East Cannington.
George A. McKim (Orchard Peel Co.), Edward-street, Gosnells.
H. Rayner & Sons, 90 Railway-parade, West Perth.

Tasmania:

H. Jones & Co. Pty. Ltd., Old Wharf, Hobart.
Tasmanian Rosella Preserving Co. Ltd., Hobart.
J. G. Turner Pty. Ltd., Morrison-street, Hobart.
Port Huon Fruitgrowers' Co-op. Association Ltd., Davey-street, Hobart.



Review of Industry for the Past Year

**Record Production of 103,100 Tons for 1944 — Excellent Quality —
Allocation of Australian Crop — U.K. Purchase of Surplus — Sales and
Shipments to Canada and N.Z. — Overseas Markets — Post-War
Position — Research Work.**

WHEN the 20th Annual Report of the Dried Fruits Control Board was submitted, it was recorded with deep regret the sudden death of Mr. L. McLeod, who had represented the N.S.W. growers since 1931.

The report showed that production in the 1944 season of 103,000 tons of Currants, Sultanas and Lexias is a record, and is 10,700 tons over the average for the last five years.

The main reasons for this marked increase are the high sugar content in the fruit, due to favourable climatic conditions, the diversion of a quantity of wine grapes to dried varieties, and the comprehensive drainage scheme to offset seepage carried out some years ago in Victoria and S.A.

A summary of the Report is as follows:—

Personnel of the Board.

Members nominated by the Government of the Commonwealth: Mr. R. H. Gilbert (Chairman), Mr. J. B. Murdoch, Mr. E. J. Mulvany, I.S.O.

Members elected by the producers of dried fruits: Mr. H. D. Howie, O.B.E., South Aust.; Mr. P. Malloch, Vic.; Mr. E. J. Casey, Vic.; Mr. H. V. Foster, W.A.

The London Agency of the Board.

The Agency of the Board in London comprises:—Mr. F. M. McDougall, C.M.G., Chairman; Mr. A. E. Gough, O.B.E., Member; Mr. J. J. S. Scouler, Executive Member and Secretary.

Officers of the Board.

The officers of the Board at Melbourne and London are as follows:—

Melbourne: Secretary, Mr. R. A. Marx; Economic Adviser, Mr. E. J. Mulvany, I.S.O. London: Secretary, Mr. J. J. S. Scouler; Chief Technical Officer, Mr. W. P. Caro.

Production.

Since the establishment of the Board in 1925 the production of Currants, Sultanas and Lexias has been as follows:—

Season.	Currants Tons (2,240 lb.)	Sultanas Tons (2,240 lb.)	Lexias Tons (2,240 lb.)	Total Tons (2,240 lb.)
1925 . . .	11,693	20,418	5,106	37,217
1935 . . .	21,018	40,221	5,665	66,904
1941 . . .	16,923	52,031	10,779	79,733
1942 . . .	21,184	62,437	8,941	92,562
1943 . . .	21,216	59,501	10,161	90,878
1944 (est.)	25,250	69,500	10,350	103,100

Exports.

After deducting Australian requirements, the quantity exported from the Commonwealth since the year 1925 was as follows:—

Season.	Currants Tons (2,240 lb.)	Sultanas Tons (2,240 lb.)	Lexias Tons (2,240 lb.)	Total Tons (2,240 lb.)
1925 . . .	7,120	14,147	3,261	24,528
1935 . . .	16,453	31,811	1,576	49,840
1941 . . .	12,750	43,323	6,155	62,228
1942 . . .	14,690	49,356	4,095	68,141
1943 . . .	15,559	44,021	5,591	65,171
1944 (est.)	17,300	45,200	5,750	68,250

Allocation of Australian Crop.

The Commonwealth Government, with the concurrence of the Combined Food Board at Washington, U.S.A., allocated 34,850 tons for services and civilian requirements in Australia, and 68,250 tons for export mainly to the U.K., Canada and N.Z.

The quantity of the 1944 production reserved for Australia exceeds that of any previous year.

Sale to the United Kingdom.

The whole of the available surplus of the 1944 season of Currants, Sultanas and Lexias was again purchased by the Government of the U.K. at the following prices f.o.b. in English currency:—

Norwich Union

INSURANCE SOCIETY LIMITED

Incorporated
in England



Founded
1797

ALL CLASSES of
INSURANCE TRANSACTED

Victorian Branch:

53-55 QUEEN ST., MELBOURNE

SHIPPING
NO.

37

A. E. PITT

ESTABLISHED 1893.

Member of Wholesale Fruit Merchants'
Association of Victoria.

Accredited Agent for Growers' Organisations in
All States.

Phone: F 5035. Residence Telephone: MX 1711.

14 WHOLESALE FRUIT MARKET,
MELBOURNE.

Consignments Solicited from all States.

★
PEA AND BEAN STANDS 13 & 14,
VICTORIA MARKET.

Growers Will Receive Top Market Value
and Prompt Returns.

Fidelity Bond Guarantee for £1,000.

Reference—E.S. & A. Bank, Elizabeth Street Branch,
Melbourne.

Right to the Point!

OFFSET YOUR LABOUR SHORTAGES
AND REDUCE YOUR CASE-MAKING
COSTS BY USING . . .

Titan Nails

Available in

THREE SPECIALISED TYPES

**Patented Processed,
Patented Bifurcated Point
and Cement Coated**

Yes, "TITAN" NAILS are "right to the point." They have heads concentric with the shaft and centred points ensuring uninterrupted operation of case-making machines. Their use will save you time, worry and money.

HERE 'S SOME OF THE REASONS WHY:

"TITAN" PATENTED PROCESSED NAILS give a saving compared with polished nails, one cwt. of the former $1\frac{1}{2}$ x 15 making 2,453 cases, as against 1,578 cases when $1\frac{1}{2}$ x 14 polished nails are used.

"TITAN" PATENTED BIFURCATED POINT NAILS are recommended for instances where wood has a tendency to split. Points act as a punch and drive a hole through the fibres instead of wedging them apart.

"TITAN" PROCESSED CEMENT COATED NAILS have the greatest holding power of any nails yet devised. Tests have proved these nails remarkably effective and economical, and they are rapidly becoming the most popular case-making nail.

DEMAND "TITAN" PRODUCTS FROM YOUR SUPPLIER AND IF NOT STOCKED, APPLY DIRECT TO—

The Titan Nail & Wire

PTY. LTD.

Lorimer St., Sth. Melbourne, S.C.5.
Victoria.

WORKS ALSO AT NORTHALL PARK,
— MOONAH, TASMANIA. —

Currants—	Per ton.
From 1 crown upwards	£33 5 0
Sultanas—	
From 1 crown upwards	£44 0 0
Lexias—	
4 and 5 crown only	£43 10 0

These prices, which were recommended by the Board to assist growers in meeting the increase in production costs, are £3 per ton more than those received last year.

The exports of Australian Dried Fruits to the U.K. since 1925 are as follows:—

Season.	Currants Tons.	Sultanas Tons.	Lexias Tons.	Total Tons.
1925	6,280	12,980	3,210	22,470
1935	13,179	16,824	336	30,339
1943	12,474	26,462	3,874	42,810
1944 (est.)	13,600	27,770	3,200	44,570

Canada.

The under-mentioned table, which is compiled on a basis of 2240 lbs. to the ton, sets out the exports of Australian Dried Fruits to Canada during years 1926-1944:—

Season.	Currants Tons	Sultanas Tons	Lexias Tons	Total Tons
1926	406	261	109	776
1935	2,186	11,846	688	14,720
1943	2,203	12,856	771	15,830
1944 (est.)	2,500	12,572	928	16,000

The prices paid by the Canadian Commodities Prices Stabilisation Corporation Ltd. are higher than those obtained in 1943.

New Zealand.

A comparison of shipments to N.Z. over a number of years is shown:—

Season.	Currants Tons	Sultanas Tons	Lexias Tons	Total Tons
1925	351	1,113	23	1,487
1935	561	2,705	524	3,790
1943	693	4,425	832	5,770
1944 (est.)	750	5,000	1,250	7,000

The whole of the requirements of New Zealand for Currants, Sultanas and Lexias has been again purchased from Australia at prices also above those of the 1943 season.

Overseas Markets for Australian Currants, Sultanas and Lexias.

The forecast made by the Commonwealth Dried Fruits Control Board in previous annual reports that the production of Currants, Sultanas and Lexias in Australia would, under favorable seasonal conditions, exceed 100,000 tons has been realised. The actual quantity available for sale from the 1944 harvest will exceed 103,000 tons.

The wartime demand of Australia, United Kingdom, Canada and New Zealand enabled the whole of this output to be disposed of.

In pre-war years, however, there would have been a considerable surplus after meeting requirements.

Post-War Position.

The present stability of the Australian dried vine fruits industry is due to—

- The tariff preferences granted to Australian dried fruits in the United Kingdom, Canada and New Zealand;
- The exchange premium of 25 per cent. on fruit exported to the United Kingdom and Canada;
- The Australian tariff on fruits from other countries, and

(d) The maintenance of an Australian price.

Unless, after the war, these aids are continued or substitutes found, it will not be possible to maintain present living standards for those dependent on the returns from the Australian and the overseas markets and will make further expansion of the industry impossible.

The Board again strongly recommends that further planting of vines on new areas be prevented until it has been possible to secure overseas markets where additional quantities of Australian dried vine fruit can be sold at payable prices for the producer.

The continuance for as long a period as possible after the war of the present system of bulk sale of the whole of the available supplies to the British Ministry of Food is strongly recommended by the Board. It is of definite advantage to the industry.

The Board is making an investigation into the possibility of increasing the sale of Australian dried fruit in oversea countries, and of the adoption of a system of International Co-operation in the production and distribution of dried fruit when the war ceases.

Research Work.

It was reported that the C.S.I.R., through its Research Station at Merbein, is continuing its dried fruit investigations on behalf of the Board.

At the request of the Board a special investigation is being carried out in regard to the Light Brown Apple Moth which this season caused loss to producers in Redcliffs and Mildura areas.

Investigations at the Merbein Station also include the application of fertilisers in the fertiliser plots, maturation and vine development records and special investigations in processing and mould control.

Finance.

The rate of levy imposed under the Dried Fruits Export Charges Act 1924-1929 on dried fruits exported during the 1944 season were as follows:—

Currants	1½d per cwt. or 2/6 per ton
Sultanas	2d per cwt. or 3/4 per ton
Lexias	2d per cwt. or 3/4 per ton

During the year ended 30th June, 1944, the income collected amounted to £31,041/14/7. Expenditure for the year was £12,633/10/7.

The Board has ear-marked a considerable portion of its accumulated funds for the purpose of promoting the sale of Australian Dried Fruits in oversea markets.

Appreciation.

The Board again expressed its gratitude for the help which it has received from the Minister, Secretary and officers of the Department of Commerce and Agriculture, and also from the Comptroller-General and officers of the Department of Trade and Customs.

Mention must be made of the valuable services to the dried fruits industry of Mr. F. L. McDougall, C.M.G., Chairman of the London Agency, during the past twelve months.

The Board is also appreciative of the services rendered by Mr. R. R. Ellen, Acting Australian Trade Commissioner in Canada, and Mr. J. L. Menzies, Commercial Secretary to the Australian High Commissioner in New Zealand.

The thanks of the Board are extended to the Economic Adviser, Mr. E. J. Mulvany, the Secretary, Mr. R. A. Marx, and staff for their efficient service during a very difficult period.

GREETINGS . . . from the

N.S.W. Chamber of Fruit and Vegetable Industries



E. COOKE,
Deputy President.



H. P. WOODWARD, M.L.A.,
President.



P. S. MACDERMOTT,
General Secretary.

GOODWILL

On behalf of The N.S.W. Chamber of Fruit and Vegetable Industries, it is my privilege to extend Seasonal Greetings to all readers of "Fruit World Annual."

The year that has passed has brought fresh honours to the British Commonwealth of Nations and her Allies. Despite some setbacks, victory is now assured, and it will depend upon the effort

MESSAGE

expended by all sections how soon this will come about.

Post war problems will call for united effort, and the Chamber pledges in whatever lies ahead, its utmost endeavour on behalf of all branches of our Industries.

I join with all readers in a fervent wish for a speedy return to normal peacetime conditions.

H. P. WOODWARD,
President.

MEMBERS OF THE CHAMBER

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Present and Post-War Aspects .. of the .. Australian Fruit Industry

AT THE TIME of the commencement of this article, confidence was expressed that the European war would be ended in 1945 in a complete victory for the Allies. This would allow of an all-out offensive against the Japanese aggressors.

Whilst affirming that all our resources must be made available for defeating the enemies of civilisation, thought may reasonably be given to considerations affecting the present and long range policies of the Australian fruit industry—fresh, canned and dried.

Aspects of the situation as affecting dried and canned fruits are expressed later in this article, as well as in the reports concerning those industries on other pages of this Annual.

Apples and Pears.

As a commencement the Apple and Pear industry will be reviewed.

The following statistics are from official sources—the production figures being from the Commonwealth Year Book, and the export figures from the Department of Commerce and Agriculture. The balance may be deemed the quantity available for Australian consumption.

Australia.

Apples (Bushels).

Year.	Production.	Export.	Balance.
1934	10,499,995	5,015,000	5,484,995
1935	9,568,431	4,283,620	5,284,811
1936	9,770,404	4,892,226	4,878,173
1937	10,997,164	4,577,572	6,419,592
1938	10,956,847	4,777,017	6,179,830
1939	11,123,350	4,788,186	6,335,164
	62,916,191	28,333,621	34,582,570
Average	10,486,032	4,722,270	5,763,762

Pears (Bushels) Excluding Canning.

Year.	Production.	Export.	Balance.
1934	1,470,754	405,540	1,065,214
1935	1,379,716	569,990	809,723
1936	1,559,841	629,647	930,194
1937	1,795,158	807,259	987,899
1938	1,640,401	596,244	1,044,157
1939	1,663,144	685,924	977,220
	9,509,014	3,694,604	5,814,410
Average	1,584,835	615,767	969,068

Historical Background.

With the increase in the production of Apples and Pears following the 1914-18 war, the export trade was steadily developed, in fact, it may be said that the industry—at least as regards Apples—was built on the export trade, varieties having been planted especially for that trade.

In the several States, growers and shippers formed organisations for dealing with export, each State operating independently until 1931, when an Australian-wide

organisation, then known as the Apple and Pear Export Council, was created. (Subsequently the word "Export" was deleted from the title, and the Council assisted in the organisation of the Australian trade.)

Included among the needs for co-ordinating fruit export on an all-Australian basis were the obvious limitations of the British Markets (debts having resulted earlier from over-supplies), the excess number of unsuitable varieties sent overseas, the need for grading standards, and the necessity for reliable forecasting so that shipping companies could have the required ships in position.

It is to the credit of the Australian Apple and Pear Export Council—a voluntary organisation—that these ideals were achieved:

Agreement was reached between the several States regarding the total quantity which should be exported each season (based on the estimated consuming power of the United Kingdom markets) and the quantities each State should supply. There were many difficulties to be overcome each year in arriving at these figures, but by mutual co-operation and goodwill agreement was achieved.

The Council went a stage further and completed an agreement with New Zealand on a similar basis, i.e., regarding the total quantities of Apples and Pears to be exported to the United Kingdom and the allocation of the proportion to each country.

Following the Ottawa Conference, when a seasonal duty in U.K. was placed on non-Empire Apples and subsequent contact with Empire fruit organisations, the basis was laid for an Empire Fruits Council, designed to include representation of British fruitgrowing interest as well as those from Empire countries overseas.

It is of value to recall these happenings now in the light of future possibilities.

The Australian Apple and Pear Council is still in existence, but is not functioning in war-time. The question will arise after the close of the European war as to the continuity of this body. This Council was organised on an Australian basis, and handled other matters besides export. In particular, the Council organised a committee to look after matters affecting interstate trading in Apples and Pears. Improvements in grading and packing and period varietal marketing were recommended in order to achieve the greatest benefits from publicity campaigns.

Effective organisations exist in all the States excepting Victoria for electing representatives to an Australian body whether it functions as a Council, as in the past, or whether a statutory control body supercedes the Council: this remains for determination.

While the Victorian Fruit Marketing Association—the Victorian constituent member of the Apple and Pear Council, is nominally only in recess—it remains to be seen whether it can function again on its old basis. No doubt an effective means will be devised by which Victorian Apple and Pear interests can be represented on any Australian organisation which is formed.

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Control Legislation.

It will be recalled that, in several of the years before the war, the Federal Government, in order to assist the industry, paid substantial sums of money to growers. To preserve the industry pending an improvement in overseas conditions, the Government decided to introduce control legislation involving the setting up of a representative Export Board, on which there would be Government representation.

The success of the Dried Fruits and Canned Fruits Control legislation was doubtless a factor in the Government's decision.

The Commonwealth Government in December, 1938, passed the Apple and Pear Organisation Act (No. 58 of 1938) under which legislation the Australian Apple and Pear Board was constituted. The Board was duly appointed, when plans were made for operating in the 1940 export season.

Legislation was also enacted to create a Publicity and Research Fund involving the collection of a levy for these purposes. However, in 1939 war broke out, and an entirely new situation was created.

Apple and Pear Acquisition.

(a) Need for Stabilisation.

Apples and Pears were, in view of other urgent requirements, given a very low priority on the list of Australian exports. It was therefore considered that, unless the position was stabilised, any attempt to market the whole Australian crop without directional control would fail and values would collapse completely.

(b) Other Services.

This was confirmed by the fact that even with full export the costs incurred in cases, linings, wraps, packing, cartage and railage or sea freight, selling costs, cool storage, etc., had, in many instances, not been recovered from the market in years of heavy production.

It appeared, therefore, to be of consequence that important resources of the Commonwealth which demanded most strict conservation, such as timber, nails, cardboard (for liners), wrapping paper (an important article requiring foreign exchange), labour and transport, including coal and petrol should be protected. This feature became more apparent as the war developed (and particularly after Japan's entry).

(c) Market Price Forecasts.

The position at the outbreak of war looked hopeless if growers producing 5,000,000 bushels for overseas export also loaded their fruit on to the markets of the Commonwealth.

(d) Conference Called by Commonwealth Government.

The Commonwealth Government convened a conference of State Ministers for Agriculture, the Australian Apple and Pear Board, and the Council for Scientific and Industrial Research in October, 1939, to consider the position of the industry. The conference agreed if the export markets were lost and the industry were to survive, some guaranteed payments to growers must be made, and also marketing must be controlled in some manner.

(e) Minister's Recommendation.

The Minister for Commerce, following the report submitted from this conference, recommended to Cabinet that the Commonwealth acquire the Apple and Pear crop and made the best possible arrangements for its disposal, and that arrangements be made with the Commonwealth Bank to provide finance for payments of advances to growers and to meet packing, transport and all marketing

costs. Cabinet approved of the recommendation on 19th October, 1939.

National Security (Apple and Pear Acquisition) Regulations were promulgated, Clause (a) stating the following—"The purpose of these regulations is to minimise the disorganisation in the marketing of Apples and Pears likely to result from the impracticability of exporting sufficient quantities of Apples and Pears because of the effects upon shipping of the present war and these regulations shall be administered accordingly."

The acquisition plan operated for all Australian Apples and Pears (except canning Pears) from 1st March to 31st December, 1940, and for the entire years of 1941 and 1942, matters of detail being varied from time to time to effect improvements. Meantime, opposition to the acquisition plan had developed in some States, principally from growers within easy range of the principal markets. Following a decision in the High Court in 1942, when a grower won a legal case for higher compensation on the interpretation of a regulation, the Federal Government ceased acquisition in four States and confined the plan to two States which had specifically sought the benefit of the protection afforded, viz., Tasmania and Western Australia.

Resulting from the operations of the acquisition plan, were the development of co-operative marketing (emanating from the zones established by the Apple and Pear Board), the increase of consumption through educational publicity, and the compilation of invaluable accurate statistics regarding the industry. Previously, the lack of reliable statistics made it difficult to plan for better organisation.

Another of the very important affects of acquisition has been the substantial expansion of processing Apple products, particularly in Tasmania, and the establishment of plants for dehydration—canning and juicing of Apples in Western Australia.

Prior to the war, there were only some 300 tons of dried Apples produced—all in Tasmania. Now dried Apples are being produced in Western Australia and South Australia. Other products include canned Apples, Apple butter, Apple sauce, Apple juice, etc. During 1944, approximately 2,500,000 bushels of Apples were used in these by-products, the production being spread over Tasmania, Victoria, New South Wales, Western Australia and South Australia. The estimate for 1945 is for the utilisation of 3,500,000 bushels.

Many difficulties had to be overcome before the Apple processing industry was expanded to its present proportions; the provision of machinery, fuel and manpower continues to be difficult.

As Pear juice blends excellently with Apple juice, it is hoped that a new outlet has been found for Pears that cannot be conveyed to the markets.

There was a big demand from the general public for some of the foregoing, particularly dried and canned Apples, but only small quantities could be released for civilian consumption. The basis appears to be securely laid for a permanent industry after the war.

It is recognised that there may be a post-war slackening in the demand for some of the lines specially prepared for the American Forces, but for the others it should be reasonably constant. Adjustments of the production of some of the processed lines may be necessary when fresh Apple and Pear exports recommence.



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APPLE AND PEAR INDUSTRY—A BRITISH VIEW-POINT.

IN AN INTERESTING REVIEW of world-wide factors relative to the supply of fruit to British Markets, Messrs. White and Son Ltd., London, make the following points:—

Apples and Pears.

The average pre-war imports into United Kingdom (in bushel equivalents) were:—

	Apples. (bushels)	Pears. (bushels)
From Canada	6,601,000	—
" U.S.A.	4,872,000	1,157,000
" Australia	4,320,000	566,000
" New Zealand	1,084,000	110,000
" South Africa	85,000	422,000
" Argentine	12,500	120,000

With regard to Great Britain, it is stated that accurate statistics are difficult to obtain. The total production of Apples in 1938 was 20,100,000 bushels. The average pre-war crop (excluding frost years) was 12,200,000 bushels. The average pre-war crop of frost years was only 3,500,000 bushels, and in bad years (apart from frost), 7,500,000 bushels. In large crop years, probably only 3,000,000 bushels were commercial Apples of a quality comparable to those imported from North America or the Southern Hemisphere.

English Apple orchards have been well maintained during the war, except for potash shortage, which deficiency will be remedied as soon as potash again becomes available. The estimated increase in quality crops is due to better crop management, the Ministry of Agriculture having provided much machinery (including power sprayers), also operators.

It is estimated that a good crop after the war may be considered as one from 16,000,000 to 18,000,000 bushels, which should produce 5,000,000 bushels of the standard of imported Apples—an increase of 2,000,000 bushels as compared with pre-war production in similar cropping years. In addition, there would probably be twice the quantity of lower grade fruit which would also be marketed commercially.

It is estimated that Canada and Australia would be ready to re-enter the export trade when facilities are again available.

Regarding New Zealand, owing to decreased acreage (estimated at 200,000 trees), labour and fertilizer shortage and the prolongation of the war in the Pacific, there may be a delay before that Dominion re-enters vigorously into export.

In U.S.A., the Apple acreage has been reduced, and the yield is now more nearly adjusted to domestic requirements. This, it is stated, is not entirely due to the war, but in part to uneconomical prices over a number of years prior to the war. In order to return to an acreage which might reasonably be expected to give a substantial surplus, more trees would have to be planted, and it might be a decade before these fresh plantings come into bearing.

To find the diameter of a circle, multiply circumference by .31831.

To find circumference of a circle, multiply diameter by 3.1416.

To find area of a circle, multiply square of diameter by .7854.

WORLD-WIDE ASPECTS—VIEWS OF INTERNATIONAL APPLE ASSOCIATION.

AT THE 50TH ANNUAL CONVENTION of the International Apple Association, held at Chicago in August, 1944, a very careful review of the world-wide Apple situation was set forth by the Secretary, Mr. Samuel Fraser.

The whole document is worth reading and re-reading. Politically and economically, Mr. Fraser sees the necessity for American isolationism to be discarded and the necessity for alliance with Great Britain and Russia.

" . . . Unity between nations cannot be brought about by argument. It must rest on understanding, a proper realisation of values, full appreciation of common interests and common purposes, and still more on the development of mutual confidence. To assure the growth of confidence we had better concentrate on each other's virtues than on each other's shortcomings."

Believing in private enterprise to develop trade, he urges closer collaboration between capital and labour. " . . . Principles will endure. As we orient our course in accord with economic law, we will prosper. As we violate economic law, in the last analysis we will pay the penalty for our folly."

Whilst championing the case for the greatest freedom in trade that is possible, he recognises factually that for some time to come, in the post-war period, much trading will be done by Governments.

However, while appreciating ideals expressed at the Hot Springs and Bretton Woods conferences, he is not in accord with some of the practical implications, especially as regards restrictions on freedom to trade.

" . . . The policy outlined at Bretton Woods may lend itself to a type of Governmental control as developed (in U.S.A.) between 1920 and 1930, and to have this expanded and systematised—for international trade to be State dominated.

" . . . To us, international co-operation means the termination of these Governmental controls, which are invariably conducted in the interests of political groups, and a return to a world in which men are free to trade and produce at prices fixed by supply and demand and competitive efficiency."

Problems of Fruit Councils and Cartels.

Mr. Fraser continues:—

"Technical experts at Washington have suggested a programme of international agreement pledging nations to an anti-cartel policy which would, however, recognise that international commercial agreements can serve other than restrictive purposes.

"The Viewpoint of Fruit Councils.—When we examine the manner in which the Horticultural Council of Canada came into being, and the way in which it has functioned for 22 years, we may be safe in stating that the chief purpose was self protection and limitation of trade.

"The same thought applies to the Empire Fruit Council of the British Commonwealth of Nations, and the Fruit Councils of Australia, New Zealand, South Africa and the recently organised one in Chile. The underlying motive is limitation or restriction of competition.

"If the U.S. is to follow any such policy, it would be in direct conflict with the policy of the U.S. Department of State as enunciated by Secretary Hull for his whole period of office.

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"Can a U.S. fruit council be devised which will have some other viewpoint?"

"We believe we are safe in saying that any Fruit Council organised in the United States will have as its major project the development of world trade in American products. (Let us hope this means that U.S.A. is willing to do a reciprocal business in fresh fruits with all countries.) This could lead to a stimulation of trade between all countries where an exportable surplus may be. Would such a policy bring the organisers in conflict with the U.S. Department of Justice? Let us examine this matter."

(There follows a series of arguments and legal definitions which would seem to answer the last question in the affirmative.)

In examining this matter, Mr. Fraser recommends the appointment in U.S.A. of a commission of business men to define the policy which should receive Congress sanction in order to clearly define "monopoly" and "competition." He mentions the incidence of control of air routes, the rubber, oil and tin industries, also the operations of finance, subsidies, shipping and the attitude of other nations . . . "The Federation of British Industries seeks (1) a planned economy for the control of prices, imports and exports; (2) a cartel system with a "free-for-all" within the quota system, which is antagonistic to the reciprocal trade agreements policy of the U.S.A., and may mean the rejection of the 'most favoured nation' clause..."

U.S.A.—British Shipping.

Mr. Fraser says, "An Anglo-American understanding on post-war shipping is essential."

The United States intends to remain a maritime nation and to have an adequate modern fleet. At the same time, the U.S. recognises that in the long run it cannot prosper at the expense of its neighbours.

The Apple Situation.

Fruits and vegetables are highly price sensitive . . . From 1929 there was a downward curve in Apple prices in U.S.A. (although average production was maintained) and in some instances prices went down to 40 per cent. of earlier years. Yet other commodities, such as agricultural implements, went down only 10 per cent., because output was curtailed and the workers laid off . . . but it is difficult to stop the production of tree fruits.

The U.S.A. Apple acreage is now reduced, but this will be subsequently increased. This will take 10 or 12 years at least.

Finance and Apple Purchasing.

After dealing with the financial system since the Middle Ages and the more recent development of banking and the use of cheques, Mr. Fraser continues—

"Great Britain has given us (the U.S.A.) a general idea of her purchase programme, and it would follow somewhat along the following lines with regard to Apples:—She will plan to receive Apples from Canada, Australia, New Zealand or the U.S., and it is contemplated that the British Purchasing Agent might indicate the number of Apples we could ship. . . . A committee from the U.S. Apple-producing State could be set up to deal with grade, size and quantity. Under such a set-up the individual distributor and exporter would be out of the picture. It is Government agencies handling business. . . . Certain of the banks of Great Britain are not looking on this matter of handling as the correct one. They believe that the return to individual movement of the commodity would be more satisfactory."

A State, National or world policy, looking to the fullest utilisation of the earth's bounty, is worthy of our every effort, also the fullest and most intelligent utilisation of labour, services and facilities.

We should question every proposed method to see whether it is the best we can devise. We question programmes which seek to restrict, to limit and define that which can be accomplished. We are not ready to place a limit on the accomplishments of the human mind."

:: :: :: ::

For the setting out of the foregoing views from such an important body as the International Apple Association, gratitude is expressed.

Mr. Fraser sees the continuity of Governmental controls in the Apple industry for some time to come, but looks forward to the time when private enterprise can again operate freely.

Regarding trade and finance generally, Mr. Fraser, and presumably his committee, are apparently of the "orthodox" school. There are other schools of thought which express the view that the operations of international finance and Governmental "protection" of foreign investments are a prolific cause of wars. The U.S.S.R. is a socialist state: Liberated France has decided to nationalise her major industries: similar trends are noticeable elsewhere.

"This generation," states Mr. Fraser, "is going to learn a lot. It will be interesting."

He finishes on a higher note. He urges that every method for world adjustment be considered, and he places no limit on the potentialities of the human mind.

THE FUTURE OF HORTICULTURE.

An Australian Review.

THE following is a summary of a very interesting and helpful paper read by Mr. A. G. Strickland, M.Agr.Sc., Chief Horticulturist, South Australian Department of Agriculture, before the 51st Congress of the S.Aust. Agricultural Bureau. Reference is made to the post-war possibilities of various forms of production, and to the need for early planning for future expansion.

Though written primarily for South Australia, the various aspects are viewed from an all-Australian viewpoint.

Mr. Strickland states that the horticultural, viticultural and vegetable industries of South Australia are conducted on approximately 1.4 per cent. of the total cultivated area, and yet on average over the period 1933 to 1941 they contributed approximately 20 per cent. (£2,307,980) of the estimated gross valuation of all crops (£11,483,362).

Perhaps more important, however, is the fact that according to statistical figures for 1940-1941 these horticultural industries maintained approximately 17 per cent. of the rural population. In that year a total of 41,484 hands (including the proprietor or manager and those of his family assisting in farm work) were engaged in rural occupations. Comprised in this total were 7,207 persons permanently and principally employed in vineyards, orchards, or market gardens.

The annual value of production of some other primary industries is greater than that of the horticultural industries, but the latter are notable for the relatively large number of rural people maintained per unit area cultivated.

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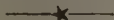
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tent of these articles. The Australian people have become fruit and vegetable conscious in the course of a few years, and the advantage thus afforded the fruit and vegetable grower must not be lost. However, apart from the matter of general national economy, we could lose the advantage so recently gained—by poor quality, poor packing, inadequate publicity, and inefficient distribution. We must watch these points, and, above all, we must improve materially the organisation of fruit and vegetable supplies for country towns and rural areas.

Looking to the Future.

In the case of the more or less permanent horticultural crops, speculation concerning the future involves consideration, firstly, of the present established areas; and, secondly, of the advisability of expansion and establishment of new areas of some crops.

Unfortunately, the post-war overseas export potentials are exceedingly difficult to assess. The implications of the fourth article of the Atlantic Charter have been, and still are, a matter for considerable speculation. The first reaction of many Australian rural export industries, when the terms of the Atlantic Charter were made known, was one of alarm, since somewhat allayed by a more or less reassuring statement from the British Prime Minister concerning Imperial preferences.

Nevertheless, one thing we can be sure of is that competition in overseas export markets will be more intense than before the war. Horticultural industries dependent on overseas export must attain higher efficiency in production and presentation of their produce.

To a limited extent the serious decline in production of orchards and vineyards in the European combat zone, due to neglect, lack of materials and adverse weather, may react to the advantage of Australian fruitgrowers. It has been stated recently by Dr. Motz, of the United States Department of Agriculture, that the record cold winters of 1939-40 and 1941-42 resulted in a severe loss of fruit trees in Europe. In Germany alone it has been reliably estimated that 60 million trees, more than one-third of total pre-war tree population, have been killed. In Finland it is reported that the fruit industry has been almost entirely wiped out, and that serious damage occurred south to the Mediterranean and Black Seas. Whatever small ray of hope we may find here, however, it is certain that our export fruit industries must become much more efficient to hold their own in the post-war period.

The basic importance of low cost of production has been clearly stated in the first report of the Rural Reconstruction Commission. In the view of this body, low cost of production is as important in the case of farms solely concerned with production for the Australian market as it is to those concerned with export trade.

Marginal Horticultural Areas.

Whether an orchard or vineyard is permanently marginal by virtue of its position or by virtue of human error, it is still a most undesirable unit to have in the industry. Very often such a unit is a curse to neighbouring growers as a breeding ground for various pests and as a source of inferior produce to depress markets. A gradual elimination of permanently marginal horticultural areas would be highly desirable, and post-war planning might well include consideration of a scheme for this purpose.

Apart from what I have termed permanent marginal orchard or vineyard areas there are horticultural areas which are capable of being lifted out of the marginal

class by provision of supplemental irrigation facilities in parts of the so-called non-irrigated areas, by provision of equipment for frost protection and in other ways. More competitive post-war markets may demand more general provision of facilities such as irrigation water, orchard-heating equipment, etc., or alternatively, the abandonment of some areas.

Varieties.

For some years prior to the war, Apple and Pear growers engaged in extensive reworking programmes aimed at reduction in the number of varieties. During the war shortage of labour has checked this work, but it should be continued in the post-war period.

There is necessity for reorganisation of the balance of varieties of wine Grapes and other fruits. In the post-war period there should be considerable reworking or replacement of unpopular or unpayable varieties.

Investigation and Advisory Services.

As soon as conditions permit it is essential that horticultural research work be resumed more vigorously than before.

It is little use determining new practices which increase the efficiency of production, if such practices are not speedily adopted. Sometimes the results of investigational work are so spectacular that there is little or no delay in translating them into general practice. Such was the case with zinc treatment for fruit trees and vines, and with the use of hormone sprays for prevention of fruit drop. Not always, though, do desirable changes of practice or new practices come into usage quickly, and progress towards greater efficiency in the horticultural industries must depend upon adequate well-organised advisory services, more district horticultural advisers, development of the Agricultural Bureau system, and there must be no lack of modern aids to education, such as the cinema.

Preparation of Fruit for Marketing.

Two industries have attained high efficiency in preparation and packing of fruit—the citrus industry and the dried fruits industry. These two sections have established well-equipped co-operative packing houses and generally pack and present their produce, whether for local or export markets, as efficiently and attractively as anywhere in the world.

The same cannot be said generally of other sections of the fruit industry, and those which may after the war resume overseas export—notably the Apple and Pear sections—must greatly improve the general standard of packing if they are to survive competition from other countries in those overseas markets.

Further, it is certain that the best market of all—the local market—will never be fully exploited until there is general improvement in methods of packing and presentation.

With proper organisation of central packing facilities, attractive graded lines of fruit could be placed on the local market at little or no greater cost than loose ungraded lines.

More central packing houses are required in some of our major fruit areas, and these must be provided. As soon as circumstances permit, packing classes, particularly for children of school age, must be reintroduced.

Distribution of Fresh Fruit and Vegetables in Rural Areas.

The supply of fresh fruit and vegetables to country towns and farming areas has not been adequately organised in the past. Frequently excessive prices have

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gone hand in hand with inferior quality and erratic supply.

In the interests of both the fruit and vegetable industries and the rural consumers there must be better planned country distribution of fresh fruit and vegetables after the war.

Improved rail services, refrigerated vans, road transport for areas not served by adequate rail facilities, better packing and better-equipped country shops will be necessary to achieve desirable efficiency in country distribution.

With adequate movement of quality produce to country centres, both growers and merchants would benefit, and it is incumbent on these two sections of the industry to combine forces and plan for the future.

Scope for Expansion of Horticultural Plantings.

It may be regarded as certain that no inconsiderable new plantings of some horticultural crops will be made during the post-war years, and it is probable that a major portion of new areas will be established for repatriation purposes.

The importance of early detailed economic surveys and of planning cannot be stressed too strongly. After the 1914-1918 war, ill-considered expansion of certain types of horticultural crops led to disastrous over-production, and it is thought that the memory of this is fresh enough to render impossible similar errors in the years to come.

Amongst the functions of the Rural Reconstruction Commission are those of examining the overseas market prospects of Australian production, consideration of our relations with foreign nations and with other members of the British Commonwealth and consideration of domestic market prospects for various crops. Enquiries concerning the above matters are proceeding. Until such information is available the wisdom of markedly expanding certain types of horticultural plantings, such as dried vine fruits, must be questioned. On the other hand, the post-war market prospects of some commodities—for example citrus fruits—are sufficiently favourable to justify moderate expansion before completion of market and industry surveys.

Co-ordination between States is particularly important in the development of new areas in the River Murray basin, where sufficiency of water storages must be considered in addition to other matters.

All extensions of permanent horticultural crops should be preceded by soil surveys.

Citrus Fruits.

The need for regulated expansion of citrus plantings has been recognised for some years. Extensive wastage of citrus trees has occurred and is still occurring in many localities, including the Murrumbidgee Irrigation Area, the Goulburn Valley Irrigation Area, N.S.W. coastal districts, and the Adelaide Plains. Moreover, given economic stability, the post-war domestic consumption of citrus fruits should be and could be very materially increased. It is highly desirable that the per capita consumption of Oranges in Australia prior to the war—32½ lb. per annum, should be raised nearer to the United States consumption of 53 lb. per annum.

The major export outlets for Australian citrus fruits will be New Zealand and the Near East, and with improved shipping facilities there is reason to expect increased trade to these destinations.

A planned extension of the citrus industry is undoubtedly desirable, but great care should be taken that the extension takes place on suitable soils and in suitable

climates. There is ample evidence of the superiority of the deep sandy soils of the Murray Valley for profitable production of quality fruit, and future plantings should be largely confined to favourable positions in this area.

Relative freedom of potential producing districts from pests and diseases should be considered carefully. In this respect the Upper Murray Valley of South Australia has an acknowledged advantage in virtual freedom from red scale, control of which in an infested area is estimated to cost one bushel of fruit per tree annually.

Expansion of citrus areas in the River Murray Valley must to some extent be considered in relation to expansion of other fruits grown there—dried tree and vine fruits and wine grapes—and in relation to capacity of irrigation storages. In order that independent action shall not lead to disaster an appropriate co-ordinating authority seems essential.

Dried Vine Fruits.

The development of the dried vine fruit industry since the last war is an outstanding example of the benefits to be derived from efficient planning and orderly marketing.

It is inconceivable that ill-considered expansion of plantings should be permitted to cancel out the benefits which this industry has so strenuously striven for and so successfully secured.

The major markets for dried Grapes have been Great Britain, Canada, and New Zealand, and in all these countries we have in the past enjoyed substantial tariff preference. The future of the industry even at the existing production level is intimately bound up with the manner in which the Atlantic Charter and decisions of the United Nations Food Conference at Hot Springs are implemented in the post-war period.

It is possible that examination of overseas market prospects and more detailed determination of Australia's world relations with other countries may disclose scope for limited and controlled expansion of the dried Grape industry. Such scope is not, however, evident at this stage, and much more information is necessary before an opinion on prospects for expansion of the industry could be expressed.

Dried Tree Fruits.

Improved methods of processing and, prior to the war, well conducted advertising lifted the dried tree fruit industry from the unprofitable to the profitable sphere. The most marked alteration in outlook occurred in the Prune industry.

During the war considerable further advances have been made in the technique of processing Peaches, Apricots,

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cots, Nectarines, Pears, and Prunes, and although practically all supplies of dried tree fruits are now reserved for the Services, a healthy Australian market appears assured for this article after the war.

For stone fruits, particularly, dehydration following steam blanching has given a highly attractive dried product, and where it can be combined with canning, this method of processing carried out a central point appears to have a future.

A wastage in plantings of certain of the tree fruits used for drying has been occurring for some years. Unprofitable markets and Silver Leaf disease have been mainly responsible for a shrinkage in the number of Plum trees in South Australia from over 270,000 in 1928-1929 to 178,000 at the present time. In certain districts "Gummosis" is taking heavy toll of Apricot trees.

In view of post-war market prospects for dried tree fruits and of the wastage in plantings of certain kinds, new areas of Prunes, Apricots, and to a lesser extent Peaches and Nectarines appear fully justified. It appears desirable that a proportion of the expansion be made with dehydration and canning as alternative outlets.

Fruit for Canning.

Although relatively less developed in South Australia than in some other States, the fruit canning industry has through wise planning, attained a fairly sound position.

Improved quality, more efficient cannery operation and well-organised selling under the direction of the Canned Fruits Control Board, all contributed to the progress made by this industry up to the outbreak of war. At that time sales overseas and on the domestic market were very satisfactory.

In Victoria and N.S.W. there has been considerable wastage in Peach and Apricot trees in recent years, due to unsuitable soil types and climatic factors leading to water logging.

As with some other industries the future of canning fruits depends in very large measure upon the post-war export position, and at present this is obscure. If, however, due investigation suggests reasonably profitable export outlets in Great Britain and elsewhere for Australian canned fruit, then there will be justification for expanded plantings of canning Apricots and to a lesser extent Peaches and Pears. We may reasonably expect some development in the Murray Irrigation Areas of South Australia, where areas with suitable soil and climate are to be found. Any such development must be based upon provision of canning facilities in close proximity to the raw material.

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Apples and Pears.

Prior to the war the Apple industry was dependent upon overseas export, mainly to Great Britain, of a very large proportion of production, such proportion varying according to the size of the crop. Moreover, it was only by virtue of Australian-wide voluntary restriction of exports to Great Britain that prices in that market were maintained at a payable level. There were, of course, preferential tariffs as an additional prop.

It does not seem likely that Great Britain will be able to absorb many more Apples after the war, and there might be some repercussions of the Atlantic Charter. On the other hand, substantial markets for Apples in Europe and Scandinavia were almost entirely lost to Australia prior to the war and may possibly be regained to some extent. The question of export to United Kingdom and Europe is entirely obscure at the present, but we can anticipate no great increase in shipment of Apples to that quarter. We can also anticipate intense competition from other countries in regard to quality and packing.

The domestic market for Apples has expanded considerably during war years, and with planning and organisation it should be possible to maintain local consumption at a higher level than before the war.

During the war years there has also been a progressive decline of many Apple orchards due to lack of labour and for other reasons.

Considering all factors it would seem that there will be scope in the post-war years for limited new plantings, not so much in the form of expansion as in the form of replacement of marginal orchards, areas which have declined and areas of unsuitable varieties.

In the case of dessert Pears, usually grown in conjunction with Apples, the prospects may be regarded as somewhat better. Provided that post-war discussions among the nations do not make European markets too far beyond our reach, there is scope for a greater volume of Pear export than before the war.

The domestic market should absorb more Pears than in pre-war years if present consumption can be maintained; if recent developments in cool storage and gas storage are translated into practice, the marketing of the keeping varieties may be spread over a much longer period.

As post-war European market prospects are clarified a moderate expansion of dessert Pears may be justified.

Wine and Distillery Grapes.

The future position of the wine industry is most difficult to forecast. Prior to the war stocks of wine were increasing annually, indicating that markets were not extending at the same rate as production was increasing. Strenuous efforts were made by the Australian Wine Board and other interested bodies to discourage further extension of wine Grape plantings. Of the annual pre-war disposal of wine approximately 50 per cent. was consumed in Australia and 50 per cent. exported, mainly to United Kingdom.

After the outbreak of war in 1939 the position of the Australian wine industry appeared extremely serious, due to lack of priority for shipping space to United Kingdom. In the years following the outbreak of hostilities with Japan, however, sales of wine and brandy in Australia and to certain countries in the Pacific expanded tremendously. A number of well-known factors contributed towards the prosperity which the wine industry is now enjoying, but several of these favourable factors will disappear soon after the cessation of hostilities. It

is reasonable to expect that part of the enhanced domestic wine and brandy market gained in the past few years will be held after the war, and to the extent that they are held, the necessity to export will be reduced.

However, substantial export will undoubtedly be necessary, and until there is a clear indication from investigating authorities of the overseas market prospects for wine and brandy, indiscriminate planting of further areas of wine Grapes is undesirable. It appears that there are opportunities for improved wine and brandy disposals in Eastern and other countries, but on the other hand United Kingdom markets will be largely dependent upon the preferences which may apply in the future.

Whilst the outlook for the wine industry is not black, there are many uncertainties suggesting the utmost caution in regard to increased plantings.

Although an overall expansion of wine Grape plantings should await a clear indication of reasonable market prospects, there is undoubtedly scope for planting of limited areas of particular kinds of Grapes in especially favourable areas.

Various Fruits and Nuts.

There are a number of sections of the horticultural industry which offer opportunity for moderate expansion. One may quote Cherries, for which South Australia has established sound markets in the Eastern States. Almonds in properly selected areas and Olives are under-produced lines which could be expanded very appreciably if there were a clear indication of the measure of protection they would receive from overseas imports.

In favourable situations there is scope for further planting of Walnuts.

The small fruits, Raspberries, Strawberries, and Gooseberries, offer an opportunity for diversification in some of our orchard districts. Short season and limited outlets have restricted plantings in the past, but with the inevitable development of quick freezing methods of preservation there should be a much increased demand for these fruits.

Vegetables.

The vegetable industries greatly expanded in the past few years to provide material for dehydration, canning and fresh use by the Services will undoubtedly face the problem of reduction after the war. If planning can make for orderly reduction so much the better for members of the industry.

In meeting suddenly increased demands with considerably reduced manpower, mechanization, and large-scale vegetable farming have played an important part. It seems certain that portion of the reduced post-war requirements of vegetables will be produced by fewer individuals, and at further distances from metropolitan areas.

It may be expected that the recent remarkable advances in vegetable canning technique will provide scope for limited increased outlets for canned vegetables in Australia and possibly in Near East markets. It is significant that in 1938-1939 the Australian consumption of canned vegetables was less than 2 lb. per head, compared with 22 lb. per head in United States.

If attention is given to the highly important matter of distribution of fresh fruit and vegetables to country areas, appreciably higher domestic consumption than in pre-war years may be expected.

It appears that interstate export trade in glasshouse Tomatoes should be maintained, and that some expansion may be possible in the cultivation of Celery for other Australian markets.

Although vegetable areas must decline after the war, it seems reasonable to expect that the industry will adjust itself at a higher level of production than before.

Fruit Tree Nurseries.

The most careful investigation, thought and planning in connection with expansion of horticultural areas may go for nought if proper consideration is not given to the matter of nursery stock. After the last war considerable new areas were planted with inferior stock, off type, and of wrong variety. In most instances years elapsed before growers discovered that they had been cheated.

A repetition cannot be permitted, and planning for the nursery production of reliable trees for new fruit plantings is urgently necessary.

The first step should be rehabilitation of recognised fruit tree nurseries, which in all States are in parlous circumstances. Despite many representations over the last year or so, fruit tree producers are still lacking skilled manpower and adequate priorities for material. Urgent consideration should be given to these matters if we are to have sound sources of nursery stock and a safeguard against dangerous and unscrupulous amateurs engaging in fruit tree production.

Simultaneously, the Commonwealth and States should endeavour to arrange registration of fruit tree nurseries coupled with systems of bud certification. The production of fruit trees requires two to three years, and it is obvious that planning of our nursery resources is an urgent matter.

As the scope for extension of horticultural plantings is determined, long range targets for the requirements of various types of fruit trees should be established. Such advance planning, combined with a system of nursery registration appears essential for the production of adequate supplies of reliable nursery stock.

In concluding, Mr. Strickland commented as follows:—

"At this stage the future of many branches of horticultural and viticultural industries is a matter for speculation rather than forecast. Nevertheless, we must commence thinking and planning now.

"If our planning enables us to improve materially and generally the efficiency standards of production and distribution, and to ensure that development of new horticultural or viticultural areas proceeds with due regard to economic and technical factors, then we may look to the future with a good measure of confidence."

:: :: ::

THE AWAKENED EAST.

NEW FACTORS will enter into post-war developments.

Half the population of the world is within a 5,000 mile radius of Sydney. The impact of the war has been such that new markets for Australian produce will be found in China, India, Russia, and the countries and islands to the north of Australia.

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PUBLICITY FOR HEALTH PRODUCTS.

It should be said at once that publicity is necessary not only to maintain the present volume of sales of fruit (fresh, canned and dried), but to increase the trade. This applies to both Australia and abroad.

Prior to the war the Australia-Overseas Trade Publicity Committee conducted a valued enterprise, particularly in England with Mr. A. E. Hyland, as supervisor.

Several of the primary produce exporting industries supplied substantial sums of money annually, and these were heavily subsidised by the Australian Government.

Publicity was along two main lines—

- (1) Advertising;
- (2) Trade promotion.

The advertising followed the orthodox plan of press announcements, the use of posters, recipe books, competitions, cinema, etc.

The Trade Promotion methods included the sending of travellers to retail stores to increase sales: Public meetings were held in provincial cities when moving pictures of Australian industries were shown and the names of the trades people were given where the goods could be obtained.

This work was highly esteemed. Trade steadily developed. This enterprise should be continued after the war. It is noted that several industries are building up reserves for publicity purposes. Such industries as have not so far made this provision might follow the good example which has been set.

As regards publicity in Australia the fact has to be faced that very large sums of money are being spent for continuous propaganda to increase the sales of denatured foods and patent medicines. Some of this propaganda is actually mendacious, exaggerated claims being made for the nutritive and health qualities of these products — qualities which in fact are inherent principally in nature's fruits, vegetables and natural foods. The manufacturers are actually stealing our thunder.

Much as this is to be regretted the fact remains, and it is clear that health propaganda for our products, based on scientific facts and backed by the medical and dental professions, also nutrition experts must be placed before the public by means of the press, radio, and general publicity methods, including the services of Health Associations, Nutrition Councils, and other authorities.

Probably the time is not far distant when a conference will be called of representatives of the various industries which sell health food products, when a Nutrition Research Council could be set up for the regular issuing of health information to the public. Such information would

be authentic and would be under the names of the certifying authorities.

This would be a good background on which the various "health" industries could conduct their own independent advertising.

Conclusion.

There is much food for thought in this article, compiled as it is from varying sources.

Let our first thought be the winning of the war—and as soon as possible; however, with this thought uppermost consideration can be given to post-war possibilities.

The policy of international collaboration on production and marketing is to be commended. Much research work remains to be done, much patience and goodwill will be necessary to achieve positive results.

The development of processing of fruits and vegetables in Australia is on a substantial scale and post-war exports will be necessary.

At the close of the European war there should be opportunities for the export of some apples and pears from Australia and New Zealand.

As export is vital to the dried and canned fruit industries, means must be found among post-war adjustments to ensure that this trade is maintained.

Tasmanian and Western Australian growers seek the continuance of the Acquisition plan for the period of war and until normal exports are resumed.

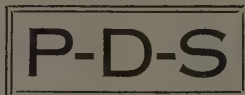
There is room now for certain additional plantings in Australia on planned lines—this involves Commonwealth action or unity between the States.

Because of authoritative publicity on nutrition, people have become "fruit and vegetable conscious." Each section of the industries concerned should plan to maintain this publicity.

There is need for continued research into horticultural and processing problems.

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Imports of Fruit, Vegetables, etc.—Various States

NEW SOUTH WALES.

Return of fruit and vegetables imported into New South Wales by land and sea—year ended June 30, 1944, compiled by the Division of Marketing and Agricultural Economics, N.S.W. Department of Agriculture.

State.	Pineapples, Trop. Cases.	Bananas Trop. Cases.	Other Fruit* Cases.	Tomatoes† ½ Cases.	Total Packages.
Queensland	295,537	25,747	195,178	430,790	947,252
Victoria	391	843	978,592	82,759	1,062,585
Tasmania	—	—	654,442	1,011	655,453
South Australia	—	—	102,614	1,601	104,215
West. Australia	—	—	60,893	—	60,893
Total	295,928	26,590	1,991,719	516,161	2,830,398

*Strawberries included with other fruit.

†Tomatoes arriving from other States, with the exception of Victoria, are mostly in ½ bushel cases. In order that a uniform unit might be quoted, Victorian arrivals have been converted to basis of estimated ½ bushel cases.

State.	Potatoes, Bags.	Onions, Bags.	Swedes, Bags.	Pumpkins, Bags.	Cucs. and Chillies, Cases.	Other Vegetables, Packages.	Total Packages.
Queensland	15,094	75,634	93	273,571	46,469	94,684	505,545
Victoria	448,028	314,760	27,524	3,953	1	316,884	1,111,150
Tasmania	*696,986	195	66,147	4,994	—	23,883	792,205
South Australia	17,652	8,960	2,458	11,510	—	72,174	112,754
West. Australia	4,965	—	—	—	—	1,378	6,343
Total	1,182,725	399,549	96,222	294,028	46,470	509,003	2,527,997

Note: 6 tons 12 cwt. 2 qrs. Cauliflowers from Victoria. 2,743 crates Melons ex Queensland.

*Figures incomplete owing to necessity to await confirmation of diversions for service requirements.

Exports of Fresh Fruit and Potatoes to other States from New South Wales—Year ended June 30, 1944.

State exported to:	Pineapples, Trop. Cases.	Bananas. Trop. Cases.	All other Fresh Fruit. Cases.	Tomatoes. ½ Cases.	Potatoes, Bags.
Queensland	—	—	747,094	—	267,949
Victoria	202	346,079	89,710	—	—
Tasmania	6,304	2,024	2,706	—	—
South Australia	1,511	108,488	302	—	—
West. Australia	—	—	—	—	—
Total	8,017	456,591	839,812	—	267,949

WITH A STATE-WIDE CLIENTELE . . .

OUR MOTTO: QUICK SALES AND PROMPT SETTLEMENTS.

W. MUSGROVE and SON

LICENSED FARM PRODUCE AGENTS

3 City Fruit Markets, Sydney, New South Wales

Reference: Bank of New South Wales, Haymarket.

Forwarding Numbers: Tasmania, Victoria, South Australia, No. 53.

Queensland & Northern Rivers, No. 18,

Telephone: MA 3846.

Established Forty-four Years.

VICTORIA

STATEMENT OF IMPORTS OF PRINCIPAL FRESH FRUIT, PLANTS, ETC., INTO VICTORIA FROM
OTHER STATES—YEAR ENDED JUNE 30, 1944.

	N.S.W. Packages.	Qld. Packages.	S. Aust. Packages.	Tas. Packages.	W. Aust. Packages.	Total. Packages.
Almonds	310	100	2,036	—	40,743	43,189
Apples	—	—	35,043	505,795	—	540,838
Apples, dried	—	—	—	26,110	—	26,110
Apricots, dried	—	—	2,293	—	—	2,293
Avocados	—	213	—	—	—	213
Bananas	346,079	7,169	—	—	—	353,248
Barley	208	—	441,926	—	—	442,134
Beans, dried	—	—	142	3,065	—	3,207
Beans, green	30,347	26,675	1,327	1,499	30	59,878
Beetroot	134	4,654	37	473	—	5,268
Cabbages	839	321	421	7	—	1,588
Carrots	4	—	501	6,341	—	7,346
Celery	—	—	61,397	—	—	61,397
Cherries	—	—	15,387	—	—	15,387
Citrus	3,472	37,588	30,239	—	—	71,299
Cucumbers	19,290	18,816	4,170	—	—	42,276
Custard Apples	—	577	—	—	—	577
Dried Fruit	5,711	—	25,257	62,631	2,405	96,004
Figs	—	—	1,515	—	—	1,515
Fruit, unspecified	1,532	14	35,308	3	—	36,857
Ginger	10	1,150	—	—	—	1,160
Gooseberries	—	—	600	—	—	600
Grapes	14	—	1,327	—	—	1,341
Kernels	—	4,643	1,673	—	—	6,316
Lemons	540	—	1,164	—	—	1,704
Linseed	—	—	—	1,047	—	1,047
Lentils	—	—	1,407	—	—	1,407
Loquats	—	—	858	—	—	858
Maize	9,746	35,194	—	—	—	44,940
Mandarins	13,441	—	544	—	—	13,985
Mangoes	26	969	—	—	—	995
Mangolds	—	—	—	2,949	—	2,949
Melons	—	13	123	—	—	141
			& 1 trk.			& 1 trk.
Monsterias	—	283	—	—	—	283
Nuts	256	35	259	—	—	550
Oats	94,247	—	6,134	5,718	—	106,099
Onions	341	88	6,732	6	—	7,167
Oranges	59,774	—	262,593	—	10	322,377
Papaws	41	4,798	—	—	—	4,839
Parsnips	—	—	—	4,059	—	4,059
Passion Fruit	1,740	—	—	—	—	1,740
Peaches	277	—	—	—	—	277
Peanuts	—	5,272	—	—	—	5,272
Pears	—	—	28,079	5,066	—	33,145
Peas, dried	—	—	17,622	26,111	—	43,733
Peas, green	600	—	13,564	23,705	—	37,869
Peas, split	—	—	3,885	467	—	3,852
Plants	11	—	687	2,575	2	3,275
Plums	654	—	9,238	—	—	9,892
Pineapples	202	197,309	—	—	—	197,511
Potatoes	—	—	460	44,518	—	44,978
Pumpkins	2,992	16,795	456	—	—	20,243
Prunes	1,414	—	—	—	—	1,414
Rice	161,027	—	—	1,143	—	162,170
Seed	11,210	22,923	2,335	6,281	1,962	45,211
Swedes	—	—	2,341	97,001	—	99,342
Sweet Potatoes	427	311	—	—	—	738
Tomatoes	7,435	1,279	172,405	70	54,548	235,737
Trees	68	—	72	4	—	144
Vegetables	—	—	16,123	10	—	16,133

EXPORTS OF FRESH FRUITS, PLANTS, ETC., FROM
VICTORIA TO OTHER STATES FOR YEAR ENDED
JUNE 30, 1944.

South Australia.

	Pkgs.
Apples bushels	5,681
Apricots, bushels	2
Beans, bags	339
Beetroot, bags	307
Beet—Silver, bags	42
Bulbs, packages	133
Cabbage, bags	896
Carrots, bags	113
Casks	6,673
Celery, crates	42
Cherries, bushels	2
Cucumber, bags	78
Leeks, bags	47
Lemons, bushels	6
Lettuce, bags	96
Mandarins, bags	10
Marrows, bags	52
Melons, Pie, bags	2
Melons, Rock, bags	28
Melons, Water, bags	2
Mixed Fruit, bushels	56
Nuts (Almonds), bags	7
Onions, bags	4,839
Oranges, bushels	398
Parsnips, bags	35
Peaches, bags	5
Pears, bushels	118
Peas, bags	861
Plants, packages	220
Potatoes, bags	65,514
Pumpkins, bags	336
Roots, packages	3
Seeds, packages	46
Swedes, bags	194
Trees, packages	93
Turnips, bags	31
Vegetables, bags	5

Western Australia.

Dried Fruit, lb.	30,713
Onions, cwt.	11,254
Potatoes, cwt.	10,913
Prunes, lb.	33,748
Raisins, lb.	50,141
Sultanas	163,678

Queensland.

Particulars not available.

Tasmania.

Apples, bushels	445
Apricots, bushels	1,242
Bananas, bushels	40,695
Cauliflower and Cabbage, cwt.	743
Cherries, bushels	1,174
Citrus Fruit, bushels	74,973
Corms, Roots, etc., cwt.	65
Cucumber, bushels	3,230
Fruit (unspecified), bushels	740
Grapes, bushels	20,697
Melons and Pumpkins, doz.	7,066
Nuts, cwt.	50
Onions, bags 11,155, cases	4
Passion Fruit, bushels	693
Peaches, bushels	71
Pears, bushels	4,400

Pineapples, bushels	11,432
Plants, Bulbs, cwt. 288, packages	307
Plums, bushels	202
Potatoes, bags	22
Seeds, cwt. 2, sacks	4
Tomatoes, bushels	21,021
Vegetables (unspecified), cwt.	2,732

New South Wales.

Apples, cases	485,229
Apricots, cases	2,907
Bananas, cases	843
Bulbs, packages	132
Cherries, cases	45
Cucumbers, cases	1
Fruit (unspecified), cases	10,025
Grapes, cases	8,685
Lemons, cases	264
Mandarins, cases	15
Melons, crates	7
Nectarines, cases	672
Nuts, bags	412
Onions, bags	313,234
Oranges, cases	1,789
Passion Fruit, cases	5
Peaches, cases	68,873
Pears, cases	391,457
Pines, cases	391
Plants, packages	438
Potatoes, bags	389,325
Pumpkins, bags	3,923
Quinces, cases	1,215
Swedes, bags	27,524
Tomatoes, cases	43,557
Trees, packages	525
Vegetables (unspecified)	714,347

Western Australia.

Fruit and Produce Imported—Year ended June 30, 1941.	
Nuts, bags	777
Onions, cwt.	12,482
Potatoes, cwt.	11,564
Export of Potatoes from Western Australia to Eastern States, year ended June 30, 1944.	
Potatoes, cwt.	15,194

LAND, SQUARE OR SUPERFICIAL MEASURE.

144 sq. ins. (12 x 12)	= 1 sq. foot
9 sq. feet	= 1 sq. yard
30½ sq. yards	= 1 sq. pole
40 poles	= 1 rood
4 roods	= 1 acre
43,560 sq. feet	= 1 acre
4,840 sq. yards	= 1 acre
16 poles	= 1 sq. chain
10 sq. chains	= 1 acre
640 acres	= 1 sq. mile

PERCENTAGES.

2½% = 6d. in £	12½% = 2/6 in £
3% = 7½d. in £	15% = 3/- in £
4% = 9½d. in £	17½% = 3/6 in £
5% = 1/- in £	20% = 4/- in £
6% = 1/2½ in £	22½% = 4/6 in £
7½% = 1/6 in £	25% = 5/- in £
10% = 2/- in £	33½% = 6/8 in £

QUEENSLAND.

INTERSTATE EXPORTS AND IMPORTS OF FRUIT AND VEGETABLE PRODUCE—YEAR ENDING JUNE 30, 1944.

(Totals made up of Brisbane, Wallangarra and Clapham only. Returns from Rockhampton, Townsville, Bowen and Cairns all pass through these ports and are included in the totals.)

FRUIT.

	Bananas.	Citrus.	Egg Fruit.	Various Fruits.	Grapes.	Straw- berries.	Passions.	Pines.	Melons.	Rock Melons.	Mangoes.	Chillies.	Tomatoes.	Cucumbers.
Brisbane	33	31	—	822	34	—	—	31	2	—	4	—	153	45
Clapham	34,152	30,082	—	139,531	—	19,371	—	432,220	—	—	—	—	471,056	60,959
Wallangarra	3,088	2,747	—	34,197	4,144	13	166	3,795	121	—	—	1,325	13,288	889
Rockhampton	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bowen	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Townsville	2	—	1,340	—	—	—	—	—	—	743	27,477	1,235	218,976	9,097
Cairns	—	—	—	—	—	—	—	4,173	—	—	—	—	—	—
	—	—	—	—	—	—	—	2,204	—	—	—	—	—	—
	37,273	32,860	—	174,550	4,178	19,384	166	436,046	123	—	4	1,325	484,507	61,863

PRODUCE.

	Potatoes.	Pump- kins.	Onions.	Pea- nuts.	Plants.	Seeds.	Tobacco, Bales.	Veget- ables.	Honey, lb.	Ginger.	Arrow- root.	Maize.	Garlic.	Herbs.	Beans.	Soy
Brisbane	—	—	156	—	326	2,731	—	286	—	12	5,493	76,021	1	—	209	—
Clapham	—	66,899	—	10,689	242	5,333	13,433	127,721	—	3,222	1	105,427	2,028	172	—	—
Wallangarra	22,992	148,106	48,608	—	53	169,742	24	10,896	8,173	—	—	—	—	—	—	—
Rockhampton	414	13,984	5,508	—	—	—	—	—	—	—	—	—	—	—	—	—
Bowen	—	8,890	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Townsville	—	—	6,649	—	—	—	—	—	—	—	—	—	—	—	—	—
Cairns	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	23,406	—	48,764	41,360	601	177,806	13,457	138,903	8,173	3,234	5,494	181,448	2,029	172	200	—

IMPORTS—YEAR ENDING JUNE 30, 1944.

	Citrus.	Cherries.	Various Fruits.	Tomatoes.	Potatoes.	Onions.	Swedes.	Seeds.	Plants.	Veget- ables.	Seed Oats.	Honey, lb.	Tobacco, Bales.	Fruit Trees.	Maize.
Brisbane	—	—	160,746	—	497,211	2,600	7,699	5,831	361	2,865	—	—	—	—	—
Clapham	—	—	1,102,242	233,957	68,145	125,161	14,491	1,541	106	78,326	—	—	—	—	—
Wallangarra	2,537	40,189	78,381	1,754	122,472	6,315	49	1,541	106	31,406	10,182	52,223	744	165	277,690
Rockhampton	—	—	—	—	—	3,225	—	—	—	—	—	—	—	—	—
Bowen	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Townsville	—	—	—	—	17,533	6,649	—	—	—	—	—	—	—	—	—
Cairns	—	—	—	—	11,280	2,755	—	—	—	—	—	—	—	—	—
	—	—	1,341,369	235,691	565,356	134,076	22,239	7,372	467	112,597	10,182	52,223	744	165	277,690

TASMANIA.
FRUIT AND VEGETABLES EXPORTED FROM TASMANIA FOR TWELVE MONTHS ENDING JUNE 30, 1944.

	Potatoes (bags).	Swedes (bags).	Parsnips (bags).	Carrots (bags).	Onions (bags).	Beans & Tares (bags).	Beet- root (bush).	Tomatoes (bush).	Blue Peas (bags).	Grey Peas (bags).	Apples & Pears (bush).
1943.											
July ..	152,191	29,445	957	1,225	—	—	456	—	51,262	324	127,860½
August ..	201,022	21,087	1,829	1,129	—	—	2,788	—	4,120	17,483	126,303
September ..	138,187	18,399	844	493	—	—	1,022	—	9,582	209	116,223
October ..	81,284	3,136	—	—	—	15	—	—	1,943	279	25,619
November ..	19,866	208	—	—	—	—	—	—	2,800	—	50,965
December ..	14,157	1,744	—	—	—	—	—	—	3,466	—	—
1944.											
January ..	151,649	3,156	62	—	—	266	—	66	3,062	—	—
February ..	223,852	7,787	—	—	—	505	7	920	7,000	868	14,597
March ..	18,321	296,442	—	4,386	—	2,718	583	—	3,801	2,040	263,310
April ..	253,279	17,723	241	5,343	9	251	143	427	2,555	1,417	322,929
May ..	202,325	34,410	2,829	8,400	25	130	69	15	4,743	1,492	256,707
June ..	155,315	24,657	1,872	249	—	30	91	—	2,891	1,429	294,286
Totals ..	1,895,569	180,673	8,634	21,225	34	3,915	5,165	1,428	97,030	25,641	1,598,794½

Total amount of vegetables exported: 2,232,121 bags. Total amount of fruit exported: 1,598,794½ bush.

INTO TASMANIA FOR THE TWELVE MONTHS ENDING JUNE 30, 1944.

VEGETABLES IMPORTED

VEGETABLES IMPORTED INTO TASMANIA FOR THE TWELVE MONTHS ENDING JUNE 30, 1944.									
	Tomatoes. (bush.).	Cucumbers. (bush.).	Melons & Pumpkins (cwt.).	Potatoes (bags).	Onions (bags).	Cabbages (cwt.).	Veg. not Spec. (cwt.).	Plants and Bulbs. (cwt.). (pots).	Corms & Root. (cwt.).
1943.									
July ..	511	27	958	—	752	51	497	89½	24
August ..	869	18	882	—	681	145	356	104	—
September ..	366	27	1,493	—	859	92	304	234	13
October ..	302	71	1,348	—	1,905	120	143	73	4
November ..	2,974	922	1,647	—	2,407	146	586	5	—
December ..	7,725	1,325	444	—	1,689	40	133	6	—
1944.									
January ..	7,775	848	264	—	961	3	60	5	1
February ..	645	468	577	4	745	7	39	4	2
March ..	63	64	434	18	749	2..	68	15	—
April ..	3	28	183	—	201	13	185	1½	—
May ..	1	26	122	—	221	54	271	8	64½
June ..	49	26	471	—	211	70	384	129	—
	21,283	3,850	8,828	22	11,381	743	3,026	299½	307
	108½								

Total amount vegetables imported, 25,133 bush., 11,403 bags, 12,592 cwt., Total plants and bulbs, corms and roots imported, 407½ cwt., 307 pots.

FRUIT IMPORTED INTO TASMANIA FOR TWELVE MONTHS ENDING JUNE 30, 1944.

	Citrus Fruit. (bush).	Bananas. (bush).	Pines. (bush).	Peaches (bush).	Apples (bush).	Pears (bush).	Plums (bush).	Apricots (bush).	Cherries (bush).	Passionfruit (bush).	Grapes (bush).	Nuts than specified (cwt.).	Fruit other than specified (bush).
1943.													
July ..	12,361	2,902	643	—	45	1	—	—	—	64	236	94	47
August ..	12,299	2,903	1,295	—	41	3	—	—	—	60	—	2	2
September ..	12,723	3,375	2,412	—	1	32	—	—	—	115	—	110	15
October ..	4,860	3,682	1,291	—	10	—	—	—	—	57	—	21	23
November ..	11,236	4,537	768	—	11	2	—	6	61	49	—	72	—
December ..	6,650	5,727	493	4	—	—	49	756	687	61	—	—	—
1944.													
January ..	2,831	3,985	479	—	20	1,051	53	414	423	19	68	—	57
February ..	2,129	3,823	886	24	138	2,627	54	—	3	108	2,280	—	204
March ..	687	4,342	1,693	33	148	535	22	—	—	118	4,674	7	125
April ..	451	2,683	956	7	27	12	15	91	—	45	5,317	—	159
May ..	2,185	3,182	973	3	4	107	—	—	—	85	5,801	28	91
June ..	10,312	2,084	1,050	—	—	33	9	—	—	75	2,385	107	15
Totals ..	78,794	42,725	12,945	71	445	4,404	202	1,267	1,174	856	20,761	369	812

SOUTH AUSTRALIA.

Fruit and Produce Imported into South Australia for
Twelve Months Ended June 30, 1944.

Apples, bushels	11,249
Bananas, bushels	122,067½
Citrus—	
Lemons, bushels	6½
Oranges, bushels	744
Grapes, bushels	—
Mangoes, bushels	22
Mixed Fruit, bushels	66
Monstera Deliciosa, bushels	11
Passion, bushels	403
Papaws, bushels	78
Pears, bushels	144
Pineapples, bushels	30,003
Potatoes, bushels	29
Nuts—	
Almonds, bags	7
Peanuts, bags	87
Peanut Kernels, bags	507
Ginger, bags	102
Beans, bags	2,549
Beetroot, bags	299
Beet, Silver, bags	47
Cabbage, bags	894
Carrots, bags	123
Celery, crates	47½
Cucumbers, bushels	2,514
Lettuce, crates	104
Marrows, bags	68
Melons, bags	190
Mixed Vegetables, bags	5
Onions, bags	4,833
Parsnips, bags	46
Peas, bags	897
Potatoes, bags	104,255
Potato, Sweet, bushels	75
Pumpkins, bags	337
Swedes, bags	398
Turnips, bags	31
Bulbs, packages	287
Plants, packages	338
Seeds, packages	613
Trees, packages	155
Other produce, number	25
Casks, Wine, number	27,227

Interstate Exports of Fruit and Produce from South
Australia for Twelve Months Ended June 30, 1944.

	Fresh Fruit.	Vege- tables.	Nuts.	Ker- nels.	Bulbs, Plants.	Trees.
N.S.W.	96,820	108,455	1,414	—	413	7
Tas.	426	16	191	—	8	—
Vic.	403,487	280,149	2,036	1,673	690	86
W. Aust.	—	1,467	639	138	—	—
Total	500,733	390,087	4,280	1,811	1,111	93
Grand Total	898,115					

Figures for exports to Queensland are not shown as this State does not differentiate records as to imports from Southern States.

Marketing of Fruit and Vegetables

Sydney Markets for the Year 1944.

THE YEAR WHICH HAS JUST PASSED has, on the whole, been a good one for fruitgrowers, as far as the Sydney market is concerned, except in the case of growers of certain varieties, which were in very light supply towards the end of the year, owing to exceptionally dry weather. Frost also caused damage, in some cases of severe nature, to particular growers.

While it is not possible in a short review to cover all varieties of fruit and vegetables, the following summarises the position in regard to some of the main varieties.

Apples: Crops of Apples in all States of the Commonwealth were good, and the quantity of South Australian and Victorian Apples marketed in Sydney was well above normal. Except in the early part of the season, when supplies of Tasmanian fruit were heavy, prices generally were good.

It was noticeable towards the end of the season that some fruit had been held past its proper marketing period with a consequent loss in condition, which was reflected in values.

Pears: All varieties were in short supply right throughout the season, and any fruit in good condition sold at ceiling prices.

Oranges: Heavy frost on the Irrigation Area affected quite a fair proportion of fruit, causing a loss through wastage, as well as a reduction in value for fruit marketed with a lower proportion of juice. This applied both to factory and market fruit. On the Coastal Areas, Oranges, owing to weather conditions, were running smaller than usual. It was noticeable during the year that while there was always a keen demand for best quality fruit of commercial sizes, inferior or small fruit realised low prices.

Oranges in the Coastal districts were also affected with Black Spot earlier than usual, owing to the hot dry weather, and the loss from this disease was heavier than for some years.

Lemons: Crops were not as heavy as usual, but prices, except for short periods throughout the year, were relatively satisfactory.

Peaches: Crops of all varieties were fair to good, while prices, except at the peak period, showed a fair return to growers.

Grapes: Supplies were good and the demand in keeping, and values were well maintained right throughout the season.

Bananas: Supplies were below normal, mainly owing to shortage of manpower, together with unseasonable weather at the time of growing. Prices were most satisfactory almost throughout the year.

Pineapples: With the exception of odd weeks, supplies generally were not equal to the demand, and some very high prices were obtained until a ceiling price was fixed. During recent months, any fruit of good quality has been sold at ceiling prices.

Cherries: This variety is one that has suffered more severely than any other. Owing to weather conditions, the crop in the Young district was probably the lowest on record, and the fruit was small and inferior.

Prospects at the early part of the season at Orange were that the crop would be an excellent one. Unfortunately, owing to the continued dry weather, all early varieties

were badly affected, with a result that only a partial crop of small and inferior fruit was marketed.

Some rain fell, however, in time to fill out the later varieties and this improved conditions to some extent. The growers generally, however, would have anything but a satisfactory season.

Tomatoes: With the heavy demand from factories and the Defence Forces, the quantity marketed was well below normal. With the exception of short periods throughout the year, prices were mostly round about the ceiling. Owing to the supply being well below demand, fair quantities of Tomatoes were purchased direct from growers in the latter part of the year and did not reach the market. Unconfirmed reports are that these Tomatoes sold above ceiling prices.

Vegetables: The year just passed was probably one of the worst on record. Frost affected the early Queensland Beans, while the continued dry weather culminating in the severe drought, resulted in total loss in some districts and reduced crops in other districts.

The early Beans from Gosford which usually fill up a gap on the Sydney market were a failure this year, due to the dry weather. Peas from the Central Tablelands were almost a total loss. Sweet Potatoes, which in past years were grown in the Gosford district for the early market were not planted this year as growers were not satisfied with the ceiling price fixed for this variety.

The Port Macquarie district, which was favoured with better weather conditions sent increased quantities of vegetables to Sydney, and it seems certain that this district is destined to become one of the best districts in the State for the growing of vegetables. Suitable land is available if irrigation can be provided.

The heavy supplies of green vegetables which Sydney is accustomed to receive in December were not available this year, and the small quantity of Peas and Beans which did reach the market all sold at ceiling prices unless in bad condition.—P. S. Macdermott, General Secretary, N.S.W. Chamber of Fruit and Vegetable Industries.

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N.S.W. Chamber of Fruit and Vegetable Industries has continued its progress, and is unceasing in its efforts to advance the interests of the fruit and vegetable industries.

At the annual election of officers, the following were appointed:—President, Mr. H. P. Woodward, M.L.A.; Deputy President, Mr. E. Cooke; Vice-Presidents, Messrs. C. R. Walker and J. J. Mason; Treasurer, Mr. E. M. Wade.

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During the past year, the Fruit and Produce Auctioneers' Association Ltd., Perth, linked up with the Commonwealth Chamber of Fruit and Vegetable Industries, and membership now comprises the whole of the mainland States of the Commonwealth.

It is interesting to note that Chambers have been formed in both Victoria and South Australia, and it only remains for Western Australia to form a Chamber in that State to complete the chain.

With the difficulties that will be facing the industry in the post-war years, particularly as regards export, it is felt that co-operation between the States will be essential, and it is gratifying to know that the Commonwealth Chamber will be in existence for that purpose.

The Annual Conference of the Chamber held in Sydney on October 3 and 4 was the best conference yet held, and delegates attended from all States.—P. S. Macdermott, Hon. Sec.

The Fruit and Vegetable Industry of Queensland

Review of the 1943-44 Season.

(By H. Barnes, Director of Fruit Culture, Queensland
Dept. of Agriculture.

THE HORTICULTURAL INDUSTRY of Queensland experienced another very successful year productively and financially, and this fact, combined with the record income in 1942-43, has enabled the majority of orchardists, not only to clear long-standing mortgages on their properties, but to establish substantial bank credits to purchase new and replace worn-out machinery when it becomes more readily available.

Seasonal conditions were particularly beneficial in the Spring and Summer when unusually good falls of rain occurred up to the end of January. Subsequent rains during the Autumn were unseasonably light, but, generally, crops benefited so well from the earlier falls that the comparatively dry Autumn did not seriously hamper production.

It is unfortunately necessary to record, however, that owing to factors beyond the control of growers, the standard of efficiency in production and marketing reached before the war has deteriorated. Shortages of essential materials and equipment and the loss of manpower—particularly trained men—to the Services, have all contributed to this end. It is also a fact that there are many new growers in the industry, and the Department has been unable to maintain the frequent personal contact with them, per medium of Field Officers, which is so necessary. Although some officers have been released recently, several are still with the Forces. Future prospects are brighter, however, as several new appointments are contemplated, and with such assistance it will be possible to concentrate on retrieval of the former efficiency and effect planned improvement. The resignation of the Fruit Packing Instructor, Mr. J. H. Gregory, to take up a more remunerative position, was a serious loss to the Department in so far that the fund of intimate knowledge of the fruit and vegetable industry, which he accumulated over many years was lost to the State. Appreciation of Mr. Gregory's services as an officer of the Department, and the enthusiasm and efficiency which characterised his work is recorded.

Vegetable Production.

The need to maintain vegetable production has been the main function of the Horticultural Branch during the year. The system of growing vegetables under contract for the Services was abandoned early in the year for a number of reasons. The scheme entailed a great amount of work for comparatively little result. Actually, out of a very large tonnage of vegetables contracted for during nine (9) months of the system, only 17½ per cent. was delivered. Observations revealed that generally the experienced growers preferred to sell their produce on the open market and that, in many instances it was the inexperienced grower, often lacking essential knowledge and equipment for this form of production who entered into contracts.

Short term gluts often followed by periods of under-supply of particular vegetables, occurred during the year and indicated the need to generally direct the efforts of producers along organised lines. An endeavour has been

made to do this, using as a basis forecasts by growers of their estimated monthly plantings for six months ahead. The total requirements of the various kinds of vegetables are known and by comparison of the intended sowings with the demand it will be possible to determine when particular vegetables are being over or under planted and to advise growers accordingly. It is planned that Field Officers of the Department will make a periodic check of a cross-section of the growers in their districts and report whether seasonal or other conditions have necessitated an amendment to the estimate of the district in general.

The shortage of equipment, spare parts and other materials has been partly relieved, but inability to obtain tyres is causing concern to many producers, some of whom have had to cease vegetable production altogether, whilst in other instances only limited areas are being planted. Plans for community transport are being worked out for some districts to help to relieve the position.

Record Fruit Crops at Stanthorpe.

During the past year, Stanthorpe harvested the largest fruit crop ever grown in the district. The all-time record of 1,286,900 bushels was marketed, compared with about 900,000 bushels the previous year, which itself exceeded the 1941-42 production by 250,000 bushels.

Apples and Pears constituted the greatest portion of the production and totalled 620,060 bushels. The approximate quantities of other fruits expressed in terms of bushels were Tomatoes 229,700, Grapes 152,000, Peaches 127,600, Plums 118,500, Apricots 19,150, and various 20,000 bushels.

Fruit Case Problems.

The provision of cases for this fruit presented an acute problem because there was a scarcity of timber, and furthermore the mills were short of manpower at the beginning of the season to cut what timber was available. A Case Committee was set up in the district under the chairmanship of the Senior Instructor in Fruit Culture. Mr. Pratt, to explore the avenues through which the problem might be eased and to ensure equitable distribution of cases as they became available. The Committee had an extraordinarily difficult task, but it was successful to such an extent that every grower was enabled to market a maximum of his fruit as it became ready for harvest. The Secondhand Fruit Cases Committee co-operated to the extent of supplying about 300,000 cases to the exclusion of less urgent calls from other districts, whilst the Queensland Fruitgrowers' Society excelled itself by supplying almost three times the quantity made available the previous year.

Pests and diseases were not very troublesome. Fruit fly caused some anxiety at one period, but fortunately the outbreak did not develop, whilst Codling Moth damage was not more serious than is normal.

The Banana Industry.

There are now 9,264 acres of Bananas in the State compared with 9,693 acres in 1942-43. Of the present total, 7,741 acres are in bearing, whilst 1,703 acres of new plantings have been made. The total number of growers is 2,020—a decrease of 11. Owing to the high prices for Bananas, many old areas which would in normal times have been eradicated, have been reconditioned and fertilised and are proving profitable. Inspectors have encountered some difficulty in regard to the early destruction of neglected and diseased areas due usually to scarcity of manpower to do the work. By permitting the judicious use of cattle, and by other means, however, they have generally managed to get the worst areas eradicated.

Inability to obtain sufficient labour is the big problem confronting the industry, and in consequence weed growth in plantations is more in evidence than in normal times. In a number of instances, growers have been able only to brush down the weeds instead of chipping them, but in spite of this the good seasonal conditions have enabled production to be well maintained. Bunchy Top was troublesome in some plantations during the warmer months, but with the co-operation of growers, Inspectors have managed to keep it under control.

Decline in Pineapple Production.

There has been a very big decline in Pineapple production due to the accumulated effects of manpower shortage, insufficient fertilizer, severe frosting of up to 50 per cent. in some districts during the Winter, and smaller plantings. About 940,000 cases were harvested during the year compared with almost one and a half million cases in 1941-42. It is improbable that there will be any early improvement in the position for the several reasons mentioned above and also because of a feeling of uncertainty and discontent amongst growers who feel that an injustice has been done to the industry by the operation of a Commonwealth Order compulsorily diverting 50 per cent. of every grower's production to the canneries at the "low" price of £12 per ton. The recent employment of Italian prisoners of war on some Pineapple plantations has helped to some extent to relieve the labour shortage, but this source of manpower is limited and furthermore is inexperienced, so that it is likely to result in little more than prevention of a further big decline in production.

Citrus Crops.

Citrus growers had a very good season. The crop was a large one, whilst the fruit was mostly of excellent quality and prices were high. It is estimated that 400,000 bushels were harvested of which 50 per cent. were Oranges and 40 per cent. Mandarins, the balance comprising Lemons and Grapefruit.

There has been an exceptional demand for citrus trees for the establishment of new orchards indicating the possibility of considerable expansion of the area under this fruit. However, because of a scarcity of nursery trees, plantings have had to be limited. Most nurserymen have lost experienced propagators to the Forces, and in consequence have had to curtail their output. They sold out of stocks comparatively early in the season, but the fact that only 25,226 trees of A grade citrus varieties were available for sale compared with 58,000 the previous year is indicative of their plight. Several releases from the Army have been secured recently by the Department of former employees of local nurserymen, and it is anticipated that by the 1946 season there should be a considerably greater output of trees. The greatest demand has been for Valencia and Washington Navel Oranges, Emperor and Glen Retreat Mandarins and Lisbon and Villa Franca Lemons. Only 19,000 buds were selected by Departmental Officers from approved trees during the year and as this is by far the lowest selection made in any season it indicates another shortage of trees next year.

General Fruit Production.

The total area devoted to the growing of other fruits such as Papaws, Passionfruit and Strawberries has been substantially reduced because of inability to secure labour. The growers have obtained good returns, however, for the fruit they have produced, and their incomes have not been less than usual. On the other hand, orchards planted with

Queensland nuts and Avocados have yielded enhanced returns to the owners as these products have been in great demand.

In the Central (Rockhampton) district, total production increased considerably as larger areas were devoted to fruit and vegetable growing. At times local markets were over supplied, particularly with vegetables such as Cabbage. The good season and almost total absence of diseases and pests enabled growers to harvest practically the whole of the crops they planted. New growers are keen to learn all there is to know about the production of the particular crops they grow, but unfortunately they are often hampered by shortage of necessary materials and equipment.

At Bowen production for the year was comparatively high, and 370,623 packages, principally cases of Tomatoes, were railed to southern markets. There is increasing tendency in this district to use irrigation to a greater extent to produce fruits such as Pineapples and Bananas. Growers also are beginning to appreciate Departmental

advice regarding the value of growing green crops to plough in and renovate their land; and consequently there are prospects of even greater production from the district in the future.

In North Queensland

good crops of fruit were harvested. Oranges were in plentiful supply, and it is interesting to note that additional areas of Bananas have been planted. Pineapple plantations also have been extended and there is room for greater production of Papaws. Much attention has been paid to the expansion of vegetable production, the chief centres being Ingham, Cairns, Atherton and Mareeba. Almost 400 tons of vegetables were produced in these districts during the year by new growers, including 170 tons grown under a special contract. In addition to the production by private farmers, the Commonwealth Government has opened up three farms in the Burdekin area upon which it is proposed to plant 400 acres of vegetables. The Army has also established two vegetable farms on the Tableland.

Australian Horticultural Divisions

N.S.W. DEPARTMENT OF AGRICULTURE.

The following is a list of officers in the Division of Horticulture, Farrer Place, Sydney:

Chief, Division of Horticulture: C. G. Savage, R.D.A.

Chief Fruit Instructor (Pome Fruits): H. W. Broadfoot.

Special Fruit Instructor (Citrus Fruits): R. J. Benton.

Special Fruit Instructor (Stone Fruits): J. A. Ballantyne.

Special Fruit Research Officer: F. T. Bowman, Ph.D., B.Sc. Agr.

Fruit Research Officer, E. G. Hall, B.Sc. Agr.

Assistant Fruit Research Officer: S. M. Sykes.

Viticultural Expert: H. L. Manuel, R.D.A.

Supervising Inspector: R. B. Symington, LL.B.

Export and Import Branch, Day-street, Sydney.

D. D. Atkins (Senior Inspector), †L. T. Bilbe, H.D.A. (Deputy Senior Inspector).

Inspectors:—V. F. Byrne, L. A. Smith, *B. D. Davis, E. E. Willis, R. J. Jobb, J. Hutchinson, L. L. Bulluss, T. C. Hawkins, †W. D. N. Arnot, F. C. Dengate, †R. W. Robertson.

Fruit Instructors—Country Centres.

H. W. Eastwood, H.D.A., Special Fruit Instructor (Tropical Fruit), Murwillumbah; R. B. Kebby, Senior Fruit Instructor (Leeton). Fruit

Instructors: J. V. McGrath (Bowral), K. D. McGillivray, H.D.A. (Young), †J. G. Jeater, H.D.A. (Murwillumbah), †J. A. Holbeche, H.D.A. (Orange), E. C. Whittaker (Orange), †F. S. Oldham (Wentworth), †E. C. Levitt, H.D.A. (Baulkham Hills), †C. J. Horth, H.D.A. (Griffith), B. O. French, B.Sc.Agr., Assist. Fruit Research Officer, Leeton.

Experiment Orchards.

J. D. Bryden, Senior Orchardist, Bathurst; D. T. Kilpatrick, H.D.A., Senior Orchardist, Hawkesbury Agricultural College, Richmond; *W. D. McGilchrist, H.D.A. (Leeton), †E. C. Connor, H.D.A. (Glen Innes), *A. H. Skepper, H.D.A. (Wagga Wagga), *J. H. Cann, H.D.A. (Grafton), *C. J. Smith, H.D.A., Assist. Orchardist (Wagga Wagga), C. H. Mort, H.D.A., Assist. Orchardist (Leeton).

Viticultural Nurseries.

N. D. Lackie, Superintendent (Narara); A. C. Clifton, Superintendent (Griffith).

Country Fruit Inspectors.

A. C. Arnot, H.D.A. (Terrigal), C. F. K. Benton (West Maitland), G. W. Beverley (Griffith), P. C. Bottrell (Baulkham Hills), J. R. Davison (Yenda), S. W. Ferguson (Orange), M. J. Fuller (Wiseman's Ferry), J. N. Hayden (Griffith), †G. W. Hitchcock (Glenorie), J. H. G. Hubbard (Richmond), A. L. Kelman (Newcastle), E. J. Lindsay (Bathurst), P. B. Mackenzie (Batlow), *S. L. McDonald (Griffith), W. A. Mills (Asquith), H. R. Morcom (Armidale), T. N. Powell (Goulburn), J. F. Power

(Leeton), V. G. Rose (Albury), W. H. Spinks (Windsor), F. L. Thomas (Pymble), R. B. Thomas (Westmead), S. A. Thornell (Young), J. W. Vass (Tucumwal), †A. E. Vincent (Leeton), R. Wood (Gosford).

Banana Inspectors.

W. T. Flanagan (Tweed Heads), W. H. Flowers (Murwillumbah), †E. P. Foster (Murwillumbah), J. I. Graham (Coff's Harbour), W. A. Haden (Murwillumbah), *B. H. Halliday (Murwillumbah), S. G. Jeffes (Macksville), A. Joubert, H.D.A. (Lismore), R. W. Norris (Mullumbimby).

*Enlisted, on active service.

†Returned from active service.

VICTORIA.

Horticultural Division, Department of Agriculture, Victoria.

Herewith is list of names, designation and location of staff of the above Department:—

Ward, J. M. (Superintendent of Horticulture), Read, F. M. (Chief Inspector of Horticulture), Tindale, G. B. (Cool Storage Research Officer), Cole, C. E. (Senior Horticultural Research Officer), Melbourne; Quinn, D. G., Viticulturist, Rutherglen; Kneen, T. H., Senior Horticultural Instructor, Melbourne; Gayford, G. W., Special Horticultural Instructor, Melbourne; Harper, R. S., O/C Horticultural Research Station, Tatura; Krone, B. P., Fruit Packing Instructor, Melbourne; Harris, W. H., *Shepparton; Foster, E. L., Assist. Fruit Packing Instructors, Melbourne; Marriott, P. F. (with A.I.F.), McAlpine, D. M.* (Bairnsdale), Walsh, J. C. (with A.I.F.), Sluiter, G. B.* (Colac),

Goudie, A. G. (with R.A.A.F.), Freeman, H. (Melbourne), Mullett, R. A. (Tatura), Assist. Horticultural Research Officers; Doery, A. C.,* Science Field Officer, Berwick; Drake, F. R.,* Assist. Agrostologist, Hamilton; Hyam, G. N., Horticultural Supervisor, Melbourne.

Orchard Supervision.

Wadeson, R. T., Senior Orchard Inspector, Melbourne; Baxter, J. G. (Mornington), Brown, D. D. (Swan Hill), Bullock, A. E. (Wangaratta), Bullock, F. J. (Kyabram), Davidson, G. H. B. (Melbourne), Fletcher, G. M. (Heidelberg), Groatorex, F. J. (Canterbury), Hatfield, H. L. (Geelong), Hope, R. H. (Mildura), Lawrey, V. L.† (Shepparton), Muir, J. K. (Rochester), Rolfe, W. A. (Box Hill), Roberts, R.† (Mildura), Thomlinson, J. (Bendigo), Wills, C. W. (Horsham), Wilson, Y. (Berwick), Orchard Supervisors.

Fruit Inspection.

Keys, W. H. G., Senior Fruit Inspector), Morriss, R. G. (Assist. Senior Fruit Inspector), Aldous, S., Allsop, C., Bass, J. A., Bass, J. C., Bowman, F. H.,* Melbourne; Broome, R. H. (with A.M.F.), Cole, F. C. (Melbourne), Farmilo, T. M. H.* (Metropolitan area), Lawrey, C. C., Morris, A. E., Purcell, H. G., Robinson, F. M., Simpson, A., Spriggins, C. L., Tidswell, H., Warburton, A. C., Melbourne, Fruit Inspectors.

*Now acting as Vegetable Extension Officers.

†Now Regional Agricultural Organizer for the Shepparton district.

‡Now Regional Agricultural Organizer for the Mildura district.

Vegetable Supervision: Trevena, N., Bendigo; Sutherland, J., Bairnsdale; Allen, J. B., Orbost.

Vegetable Inspection: Stiggants, J. H., Melbourne; Holt, R. J., Warrnambool; Jones, J. R. D., Bunyip; Livermore, D. E., Kooweerup.

Plus some 20 or 30 temporary Tomato and vegetable inspectors.

Fruit Preserving Branch: Bromfield, Miss R. F., Fruit Preserving Expert, Burnley.

The Potato Inspection staff is also temporarily under the control of the Agricultural Division. The Senior Potato Inspector is Mr. J. E. Truett.

QUEENSLAND.

Committee of Direction of Fruit Marketing, Turbot-street, Brisbane—General Manager, B. Flewell-Smith.

Branches of C.O.D.

Melbourne: Representative, McRostie and Growers Pty. Ltd., Box 353C, G.P.O., Melbourne.
Sydney: Manager, B. Cox, Box 176, Haymarket P.O., Sydney.

Adelaide: Representative, R. G. Bartram, Box 43, Rundle-street P.O., Adelaide.

Stanthorpe: Representative, A. D. Philp, The Summit.

Rockhampton: Manager, S. McCullough, Box 313, P.O., Rockhampton.

Bowen: Manager, R. A. Kelsey, Box 139, P.O., Bowen.

Townsville: Manager, J. Brown, Box 483, P.O., Townsville.

Cairns: Manager, H. Armstrong, Box 609, P.O., Cairns.

Atherton: Manager, B. Foote, Box 160, P.O., Atherton.

Country Potato Inspectors.

W. F. Washington (Guyra), W. Dent (Orange), T. Frost (Dorrigo), R. B. Gregg (Blayney), N. Kamper (Queanbeyan), N. W. Mansfield (Crookwell), E. E. Winder (Moss Vale), D. Simpson (Glen Innes).

Department of Agriculture and Stock.

The following are the names and designations of officers of the Fruit Branch in the Queensland Dept. of Agriculture:—

H. Barnes, Director of Fruit Culture, Brisbane; W. J. Ross, Senior

Instructor in Fruit Culture, Rockhampton; H. St. J. Pratt, Senior Instructor in Fruit Culture, Stanthorpe; H. J. Freeman, Senior Instructor in Fruit Culture (on service); R. L. Prest, Instructor in Fruit Culture, Brisbane; S. E. Stephens, Instructor in Fruit Culture, Cairns.

Plants Inspectors:—C. N. Morgan, Brisbane; F. L. Jardine, Stanthorpe; A. M. Richardson, Stanthorpe; K. King, Coolangatta; J. McG. Wills, Southport; E. P. Williams, Beenleigh; J. Mobbs, Dayboro; P. Mitchell, Nambour; J. H. Mitchell, Nambour; M. Hannigan, Nambour; W. Agnew, Nambour; E. Tree, Woodford; K. D. Hoffmann, Gympie; E. Filer, Gympie; W. G. Hancock, Bowen; J. R. Horsley (on service); C. G. Williams (on service); V. Perrett, cadet (on service); H. G. Crofts, Secretary, Banana Board, Brisbane.

Markets, Wharves and Quarantine Inspectors.

Senior Inspector: A. Person. **Inspectors:** J. W. Brown, T. Lowry, J. St. Smith, E. Duffy, R. Letters, W. D. Lewis, T. Unwin (all Brisbane); E. J. Lorraine, Wallangarra; C. Schindler, Clapham; A. Wooller, Rockhampton; S. C. Todd, Townsville; B. Funnell, Cairns; W. Olney, Coolangatta.

TASMANIA.

Chief Horticulturist: P. H. Thomas; **Horticulturists:** H. A. Turner (Launceston), T. D. Raphael, M. A., Dip. Hort. (Cantab.) (Hobart), W. F. Walker, N.D. Hort. Eng. (Hobart).

District Horticultural Officers: A. S. Brennan (Huonville and Franklin), R. A. Chapman (Geeveston and Dover), W. P. Armstrong (S.E. districts), W. J. Wright (Hobart and Derwent Valley), H. E. Larner (Launceston and N.E. districts), K. L. Pierce (N.W. Districts), C. D. Rodman (Tamar Valley), Vacant (Cygnet and Channel).

(Gosnells), W. P. Jamieson, M.D.A. (on leave Military Service).

Port Inspector: S. E. Bennett. **Market Inspector:** E. H. Rawson. **Agric. Products and Market Inspector,** Kalgoolie: E. J. Badham.

Fruit Fly Inspectors.—Senior Officer: E. H. Elkington. Inspectors: E. L. Serisier and F. Morley (Met. area), G. Aberle (Spearwood), J. W. Rolinson (Swan Valley), L. G. Hayward (Harvey), W. J. Rennick (Donnybrook), A. S. Forsyth (Kelmescott), A. Brimson (Pinjarra), W. C. Holland (Mundaring).

Commerce Inspectors: R. J. Lowson (Swan District), C. Merrifield (Swan District), H. R. Haining (Greenmount), A. R. Venton (Donnybrook), A. W. Gull (Met. Area), P. J. A. Maunsell (Metro. Area), E. K. Wilkins (Bridgetown), C. H. Button (Mt. Barker).

WESTERN AUSTRALIA.

Officers of the Horticultural Branch, Department of Agriculture, Western Australia.

Supt. of Horticulture: H. R. Powell, B.Agr.Sc.

Hort. Research Officer: T. C. Dunne, B.Agr.Sc., Ph.D. (Calif.).

Acting Asst. Supt. of Hort: T. C. Miller, B.Agr.Sc.

Viticulturist: H. K. Johns.

Acting Hort. Adviser: W. J. Bettenay, B.Agr.Sc.

Horticultural Inspectors: V. Cahil (Mundaring), R. L. Cailes (Donnybrook), A. T. Gulvin (Albany), T. F. Herlihy (Bridgetown), O. Hanbury (Manjimup), W. P. Fears

Fruitgrowers' Associations in Australia

Apple and Pear Marketing Board: Messrs. J. B. Mills (Chairman), H. W. Soothill (Deputy Chairman), L. S. Taylor (Tasmania), R. H. Hewson (Finance Member); Secretary, H. A. Baker, 413 Collins-street, Melbourne.

Australian Apple and Pear Council: Secretary, R. E. Boardman, A.F.I.A., F.A.I.S., 413 Collins-street, Melbourne.

Australian Dried Fruits Association: Secretary, W. N. Sumner, 46 Queen-street, Melbourne.

Dried Fruits Export Control Board: Secretary, R. A. Marx, 100 Queen-street, Melbourne.

Canned Fruit Export Control Board: Secretary, W. J. Adams, A.M.P. Building, 419 Collins-street, Melbourne.

Australian Canning Fruitgrowers' Association: Secretary, W. J. Young, Toolamba West.

Fruit Industry Sugar Concession Committee: Secretary, W. J. Adams, 419 Collins-street, Melbourne.

NEW SOUTH WALES.

N.S.W. Apple and Pear Growers' Association: Chairman, W. B. Pascoe (Orange), Vice-Chairman, H. V. Smith (Bathurst), Executive, A. G. Enticknap, M.L.A. (Leeton), A. A. Wilkinson (Uralla), E. J. Sell (Young), E. Ray (Bathurst), M. Rose (Penrose); Secretary, B. Rasdall, Union Building, 8 Bond-street, Sydney.

N.S.W. Committee Australian Apple and Pear Marketing Board: Manager, H. A. Stevenson; Secretary, G. A. Byrne, Daking House, Rawson Place, Sydney.

New South Wales Citrus Fruit Growers' Committee: J. W. Blick (Chairman), c/o Producers' Co-op. Distributing Society Ltd., Haymarket; W. W. Challis (Gosford); A. G. Enticknap, M.L.A. (Leeton); F. J. Finnan, M.L.A. (Gosford); J. W. Mitchell (Windsor).

Vegetable Growers' Association of N.S.W., E.S. and A. Bank Building, 665 George-street, Sydney.

VICTORIA.

Northern Victoria Fruit Growers' Association: Secretary, S. P. Cornish, Ardmora.

Orchardists and Fruit Cool Stores' Association of Victoria: Secretary, W. A. Stewart, 34 Queen-street, Melbourne.

Southern Victoria Fruit Growers' Association: Secretary, H. J. Noonan, Donvale.

Victorian Dried Fruits Board, 118 Queen-street, Secretary.

Victorian Central Citrus Association: Manager, A. W. Schwennessen, 422 Collins-street, Melbourne.

Fruitgrowers' Defence League: Secretary, Mr. M. J. McKenzie, Woorarra-avenue, East Doncaster.

S.A. FRUITGROWERS' AND MARKET GARDENERS' ASSOCIATION INC.

Secretary: A. Stuart, 288a Rundle-street, Adelaide.

Affiliated Bodies.

Fruitgrowers' and Market Gardeners' Society Ltd.—Secretary: A. Stuart, 288a Rundle-street, Adelaide.

Paracombe Fruitgrowers' Society Ltd.—Secretary: Mr. A. E. Brealey, Paracombe.

S.A. Country Cool Stores' Association.—Secretary: Mr. M. Hannaford, Cudlee Creek.

Cudlee Creek Co-op. Society Ltd.—Secretary: M. Hannaford, Cudlee Creek.

Gumeracha Fruitgrowers' Co-op. Association Ltd. — Secretary: J. B. Randell, Gumeracha.

Lenswood Co-op. Cold Stores Ltd. — Secretary: N. Taylor, Lenswood.

Forest Range Fruitgrowers' Society Ltd.—Secretary: S. E. Green, Lenswood.

Sturt Producers' Society Ltd.—Secretary: D. W. Hannaford, Blackwood.

Loveday Annual Licenced Blockers' Association.—Secretary: G. E. Marks, Barmera.

Onkaparinga Potato Growers' Association.—Secretary: A. B. Schapel, Lobethal.

Other Associations.

South Eastern Potato Growers' Association.—Secretary: H. E. Trevorrow, Mt. Gambier.

South Australian Fruit Marketing Association Inc. — Secretary: E. Whitfield Mills, Brookman Buildings, Grenfell-street, Adelaide.

Murray Citrus Growers' Co-op. Association Ltd.—Secretary: J. J. Medley, Brookman Buildings, Grenfell-street, Adelaide.

South Australian Dried Fruits Board.—Secretary: W. N. Twiss, 33 Pirie-street, Adelaide.

South Australian Chamber of Rural Industries.—Secretary: H. P. Finnis, Eagle Chambers, Pirie-street, Adelaide.

South Australian Chamber of Fruit and Vegetable Industries.—Secretary: L. G. Heading, 255 Rundle-street, Adelaide.

WESTERN AUSTRALIA.

W.A. Fruit Growers' Association: Joint Secretaries, B. Hickling, Mt. Barker; H. W. Soothill, Box N1041 G.P.O., Perth.

W.A. Central Citrus Council: Secretaries, Messrs. Merry and Merry, Perth.

W.A. State Committee, Apple and Pear Marketing Board, Airways House, 88 St. George's Terrace, Perth, W.A. Superintendent, R. M. Carter; Secretary, A. L. Gentle.

W.A. Fruit Shippers' Committee: Secretary, C. H. Merry, Commercial Union Chambers, Perth, W.A.

TASMANIA.

Tasmanian State Committee Australian Apple and Pear Marketing Board, Charter House, 57 Collins-street, Hobart. Executive Member, L. S. Taylor; Secretary, R. J. Shield.

State Fruit Board: A. J. Honey, Secretary, National Mutual Building, Hobart. Tel. Hobart 4857 (after hours 5677).

Stone and Berry Fruits Board: A. J. Honey, Secretary, National Mutual Building, Hobart.

Fruitgrowers' Associations.

Port Huon Fruitgrowers' Co-operative Association Ltd.: General manager, J. P. Piggott, Davey-street, Hobart.

Bagdad Fruitgrowers' Co-operative Association: A. Gil- low, Secretary, Bagdad.

Tamar Farmers and Fruitgrowers' Association: R. S. Powell, Secretary.

Tamar Valley Co-operative Company Ltd.: E. L. Reed, manager, Exeter.

Derwent Valley Fruitgrowers' Co-operative Co.: H. Morgan, New Norfolk.

Cygnets Co-op. Canning Pty. Ltd., Cygnets.

Department of Agriculture, N.S.W.

Activities of Division of Horticulture.

(By C. G. Savage, R.D.A., Chief, Division of Horticulture.)

The activities of the Division of Horticulture may be broadly classified under three headings, viz.:—

1. Investigational;
2. Extension Service;
3. Regulatory.

Organisation of the Division.

To enable the work to be carried out efficiently the Division is sub-divided into the following sections:—

1. **Fruit Branch**—which is again sectionalised according to the various types of fruit, with a Special Instructor responsible for the investigations and extension work within a specific section.

These sections are — (a) Pome Fruits, (b) Citrus Fruits, (c) Tropical Fruits, (d) Stone, Berry and Dried Fruits.

Research officers are also investigating problems relating to (a) Production, (b) Fruit and Vegetable Preservation, (c) Irrigation.

2. **Inspection Services**—which covers (a) Orchard and Nursery inspection, (b) Inspection of Fruit and Vegetables in markets and shops, (c) Importations of fruit, vegetables, trees, seeds and certain plant products from other States, (d) Plant and Plant Products from Overseas, (e) Export of Fresh Fruit Overseas.

3. **Viticultural Branch**—officers of which are associated with investigational and extension work connected with the growing of wine and table grapes, and the manufacture of wine.

Research Stations.

The Department has at present six Experiment Orchards and two Viticultural Stations in which short and long termed investigations are carried out in problems related to the fruit industry, and it is possible that further stations will be established in the near future.

In conjunction with the Council for Scientific and Industrial Research, Fruit Research Laboratories and Cold Store Rooms have been erected at Homebush. Research is being carried out on a co-operative basis in connection with problems of fruit storage.

In addition to the Government institutions a great deal of investigational work is also carried out through the co-operation of growers on private orchards.

Investigational Work.

Time will not permit of a full explanation of the work being given, so some of the "high lights" of our work can only be quoted.

Bud Selection.

Owing to the variation in the type of citrus fruit that has been produced, careful study and records of trees are made and kept. Propagation material is selected from the most desirable trees, so that a decided improvement is resulting in the production of citrus varieties. In this connection the Citrus Co-operative Bud Selection Society is carrying on a great deal of this work under the direction of the Department. Bud selection work with deciduous trees is also being undertaken in conjunction with the Nurserymen's Association.

Root Stocks.

The root stock problem is one that has been exercising the minds of investigators throughout the world.

Very valuable information on root stocks for apple trees is being obtained at the Bathurst Experiment Farm which promise to be of great value to the industry.

One of the outstanding results in the root stock investigations has been in connection with Citrus Decline on Irrigation Areas. One of the Departmental Biologists has proved that much of the decline in tree health is due to the attacks of a certain root rot fungus, and has found that a certain root stock, *Poncirus trifoliata* is immune to attack. Fortunately, this stock has been demonstrated by Division of Horticulture officers to be suitable for certain varieties of citrus. Further investigations are in hand on this subject.

Preharvest Drop of Fruit.

By the use of growth promoting substances known as Hormones, the loss of fruit through falling just prior to the correct period of harvesting has been reduced to a minimum, this is especially so with pome fruits. The retention of the fruit on the tree for a longer period allows for greater size, the increased development of colour and improved flavour.

Deficiency Diseases.

Many troubles of poor growth and defects of fruit is due to the lack of what are commonly known as trace elements. These elements, though only required in minute quantities, cause serious loss if they are unavailable to plant growth. Some of the most important of these troubles which have been overcome by addition of the element to the soil or by spraying the foliage are—Internal Cork of apples which is caused by deficiency of boron, and is easily corrected by light soil dressings of borax. Little Leaf of apples and certain mottling of citrus trees is due to zinc deficiency and can be corrected by spraying the trees with zinc salts.

Storage Investigations.

Skin Coatings: Our investigations have shown that by coating good storage varieties of apples with certain mixtures, such as castor oil and shellac, the common storage life of apples has been economically extended. This skin coating work also holds great possibilities for improving the holding qualities of fruit in cold storage. Investigations are also in hand in relation to gas storage of fruit. The frozen pack method of fruit and vegetable storage, which has in recent years been coming to the fore in other countries, principally in America, is also being investigated.

Home preservation of fruit and vegetables by bottling, salting and drying are also subjects of investigation. A word of warning may be given in relation to home bottling fruits and acid vegetables such as tomatoes and rhubarb can be safely bottled in the home, but non-acid vegetables are not safe unless processed under steam pressure. The bacteria which cause the development of injurious substances which are responsible for botulism is inhibited in acid substances, so the usual method of sterilising of preserves in the home is not sufficient to destroy the botulism bacteria. The preservation in the home of non-acid vegetables should be carried out either by salting or drying.

Extension Work.

Senior officers stationed in Sydney and instructors in various country centres are available for instruction work through growers' organisations throughout the State and also to visit individual growers. Our Departmental Stations are also available for visits from growers. The extension work covers all sections of fruit production and preservation by lectures, demonstrations, field days and at times through special schools.

Demonstration plots have also been established in relation to cultivation, pruning, manuring and spraying programmes in most districts.

Instruction and demonstrations in the home preservation of fruit and vegetables is also given.

In the matter of maintaining soil fertility by the reduction of loss of soil through erosion, this is receiving special attention. Many new orchards which have been planted in recent years have been laid out under the direction of Horticultural Officers on the contour system. These new plantings are proving to be great object lessons to other growers.

Inspection Services.

The Division of Horticulture, acting on behalf of the Commonwealth, inspects all fresh fruit exported overseas to see that it is in a satisfactory condition for export and complies with export standards. All plants and plant products imported from overseas is also examined to prevent the introduction of new diseases, insect pests and weed seeds.

All imports of fruits, vegetables, trees, seeds, etc., from other Australian States are also inspected to ascertain whether they are free of pest and disease and comply with our grading regulations. Similar inspection is also carried out in connection with our own produce, and orchards are examined to see that pest and disease control are being carried out.

One of the results of our inspection service of which we are justly proud, is that in connection with the Banana industry. In 1922 we had an acreage of approximately 5,000 acres planted to Bananas in this State, but owing to the ravages of "Bunchy Top" the area had declined to 1,200 acres. Investigations were undertaken by a Commonwealth Committee, and our officer who is now the Department's Chief Biologist was the scientist who carried out the investigations. The investigations proved that "Bunchy Top" was a virus disease which was transmitted from diseased to healthy plants by the Banana aphid. In 1927 the Banana areas were quarantined and regulations were issued, and to-day through the wonderful co-operation of the growers with Departmental Inspectors, we now have a flourishing industry. "Bunchy Top" has been brought under control, the percentage of disease infested plants at the present time is very low. We have now approximately 17,000 acres under Bananas in this State from which about 60 per cent. of Australian production of this fruit is harvested.

AVOIRDUPOIS WEIGHT.

27.34375 troy grains	= 1 drachm
16 drachms	= 1 ounce
16 ounces	= 1 lb.
28 lb.	= 1 quarter
4 quarters	= 1 cwt.
20 cwt.	= 1 ton
2,240 lb.	= 1 ton
1 lb. avoirdupois	= 7,000 grns. troy
Three pennies or five halfpence weigh one ounce.	

CUBIC OR SOLID MEASURE.

1,728 cubic inches	= 1 cubic foot
27 cubic feet	= 1 cubic yard
40 cubic feet	= 1 ton of shipping

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